AN HBJ PUBLICATION

NOVEMBER 1983/$2.00

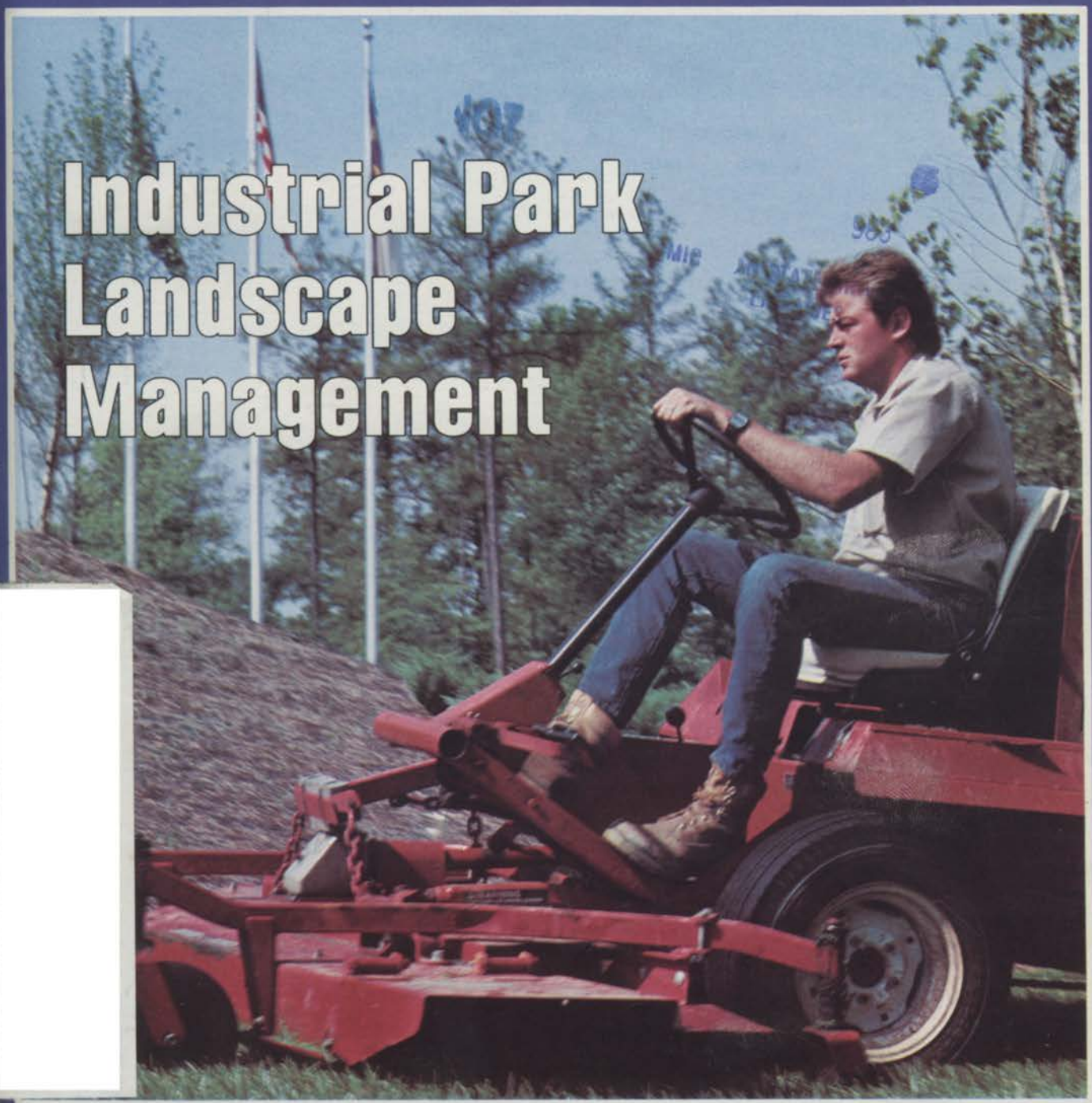
WEEDS TREES & TURF

The Magazine of Landscape and Golf Course Management Since 1962

1983 Golf Car and Turf Vehicle Guide

Turf Nutrition: Fertilizer Guide, Part Two

Schilling Is Tapped for GCSAA Executive Director



Industrial Park Landscape Management

Maintaining Union Carbide's Woodland Headquarters

Without a summer application of Dursban, big problems could pop up in fall.

While most insects emerge in spring, sod webworms and other varieties don't spring into action until late summer or fall. And even DURSBAN* insecticide—which gives you long-lasting residual action—won't protect your customers' lawns from spring to fall.

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WT&T
NOVEMBER 1983/VOLUME 22, NUMBER 11

John Walters of A.B. Rose Co., Rocky Mount, NC, keeps on top of maintenance at the Union Carbide headquarters in Research Triangle Park. See page 42.

New golf car designs, see page 22.

Turf nutrition tips, see page 32.

Carbide's woodland home, see page 42.

22
Golf Car Makers Pull Out of Slump With Innovations

Golf car manufacturers' engineers have been busy increasing reliability and fuel efficiency preparing for the post-recession battle for golf car replacements. The battleground extends to utility vehicles as golf car manufacturers introduce their own versions.

32
Fertilizer Guide Part Two: Turf Nutrition

There is more to turf nutrition than making grass green. The plant's ability to resist disease and stress is more dependent on the condition of the roots rather than the foliage. Funk and Rathjens discuss both cool and warm season turf nutrition. Fertilizer requirements are based greatly on the use of the turf and the injury it will receive.

37
Industrial Parks: Image vs Budget

Industrial park landscape managers share responsibility for the bottom line while trying to present the best image of the companies in the park. Budget cuts, weed control, and finding qualified personnel are their biggest concerns.

DEPARTMENTS

Outlook 6
Green Industry News 8
Golf Update 10
Landscape Update 14
Government Update 16
Problem Solver 19
Jobtalk 44
Events 48
Products 51
Classifieds 54
Advertiser Index 56

40
Shaping the Land In the Platinum Mile

Ed DeLaurentis doesn't just maintain the rich industrial parks of Westchester County, NY, he shapes them. He may be the only landscape architect with a blasting permit. Keeping design, construction, and maintenance closely linked, he becomes the creative mind responsible for the corporate image of companies like Citicorp.

42
Carbide Nestles Building In Piedmont Woodlands

Union Carbide liked what nature had already designed for their new headquarters site in North Carolina. The contractor's job became to keep things as natural as possible under the watchful eye of UC's own landscape experts.

Robert L. Edgell, Chairman; Richard Moeller, President; Lars Fladmark, Executive Vice President; Arland Hirman, Treasurer; Thomas Greney, Senior Vice President; Ezra Pincus, Senior Vice President; Pat O'Rourke, Group Vice President; Joe Bilderbach, Vice President; James Gherna, Vice President; George Glenn, Vice President; Harry Ramsaley, Vice President.

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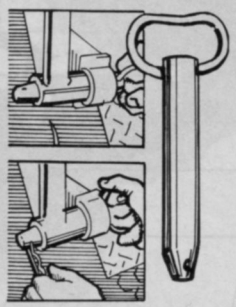
What makes the Cushman Turf-Care System worth the investment:

Aerating, hauling, dumping, spraying, seeding, spreading and top dressing — one vehicle does the work of a fleet of machines.



The exclusive Cushman pin disconnect system lets you attach and remove accessories in minutes.

The economics behind your decision to invest in the Cushman Turf-Care System are hard to argue with:

Here is a single vehicle that can do the work of a half dozen machines, at a fraction of the cost.

Here is a complete set of turf-care accessories that can be attached or removed in minutes.

Here is a groundskeeping system that's so simple, and so well-crafted, your maintenance and repair time will become practically non-existent.

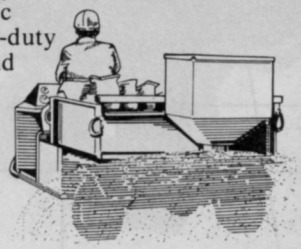
Economics aside, though, there is an even stronger reason to invest in the Cushman System.

Results.

The Turf-Truckster™.

Powered by a rugged 18 hp air-cooled engine, the Cushman Turf-Truckster has the stamina to survive years of constant use.

A 3-speed syncromesh transmission, hydraulic brakes, heavy-duty suspension and a ¾-ton payload capacity are all standard. And you can choose between a 3-wheel or 4-wheel design.



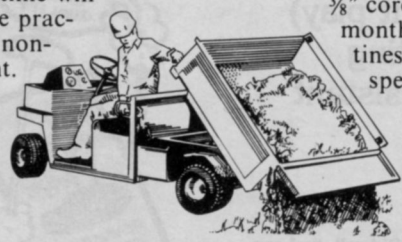
By itself, the Turf-Truckster is the industry's state-of-the-art work vehicle.

But team it up with any of the following accessories, and you have the makings of an efficient, economical turf-care system.

The aerators.

Because you have two types of turf to aerate, Cushman makes two aerator attachments for your Turf-Truckster.

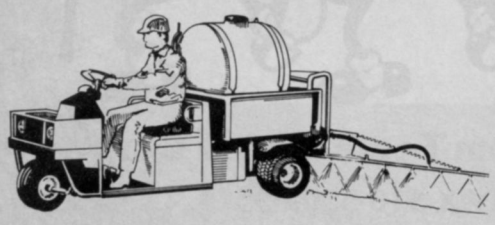
The Greensaver® is ideal for greens and other delicate areas. Interchangeable aerating drums let you select the precise degree of aeration needed — ½" cores for fast-growth seasons, ⅜" cores for slow-growth months, and deep-slicing tines for summer hot spells.



For the rest of your grounds, simply attach the Quick Aerator to your Turf-Truckster. It offers the same choice in aeration tines as the Greensaver, but covers a wide 46" swath.

The dump boxes.

To haul fertilizer, dirt, sand and other supplies, choose our Short Box attachment. It handles 1500-lb. payloads, sits low to the ground for easy loading and can be hydraulically dumped right from the driver's seat.



But for maximum versatility, you may prefer our Flatbed/Box attachment. It does everything the Short Box does, but converts to a flatbed carrier just by removing the sides and tailgate.

The sprayer.

Turf pros swear by this as the finest spraying machine they've ever used. And it's no wonder when you consider all you get:

Uniform spraying controlled by your vehicle's ground speed governor; a PTO-operated centrifugal pump; and your choice of either a 100-gal. tank with a 15′ rear boom, or our new 150-gal. tank with a 21′ rear boom.

Plus, you can add a versatile handgun attachment for fogging bushes and spraying trees.

The spreader/seeder.

Mounted on either side of the two Cushman dump boxes, the Spreader/Seeder attachment actually outperforms units costing much more.

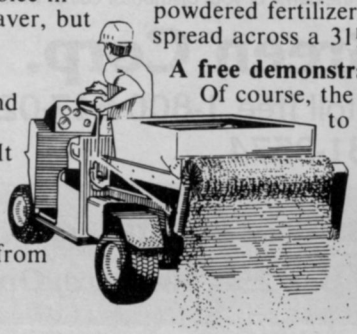
The spreading rate is regulated by your Turf-Truckster's ground speed governor. Even over irregular terrain, you get uniform spreading.

The corrosion-resistant hopper holds up to 300 pounds of material, and spreads it evenly across a swath up to 40 feet.

The top dresser.

Just 3 pins connect the Top Dresser to your Turf-Truckster chassis, and you're ready to top dress up to 220 feet per minute.

Everything from rock salt to powdered fertilizer can be uniformly spread across a 31½" swath.



A free demonstration.

Of course, the best way for you to learn about the Cushman Turf-Care System is to see it in action. On your grounds. To do that, just call us toll-free: **1-800-228-4444.**

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OUTLOOK

States fight over show dates

As a television viewer have you ever been irritated when your two favorite shows are on at the same time on different networks? Not only is it irritating to you, but it annoys sponsors trying to reach you.

Coinciding turf and landscape conferences have the same effect. You want to hear speakers at two coinciding shows but you have to choose one because conference planners didn't coordinate timing. This happens often between shows in neighboring states, as well as between state and national shows.

If you conduct business in a number of states, it's fairly important for you to attend a show for each state, since extension agents report special problems and conditions in their state. Conflicting show dates make this impossible.

Manufacturers and distributors trying to reach you with booths at these shows are going absolutely berserk trying to solve all the details to be in three places at once. It's not just difficult, it's expensive. And, you know who pays for it in the long run.

Bruce F. Shank, Executive Editor

1983 has been a year of product change for both chemicals and equipment. That change came from feedback manufacturers received from distributors and you at conferences. They depend upon shows for feedback. The thinner they have to spread their staff during show season the less time they have to listen to you.

The most annoying aspect of this problem is the solution is simple. Talk to each other, show planners.

Sure, hotels limit you in picking dates. Sure, you've had your show the same time each year for three generations. And most important, you are often an extension agent not a show organizer.

Sorry gentlemen, there is no reason good enough to explain why something with such a simple solution goes unsolved. It's time to try harder to make show timing more sensitive to the needs of both the showgoer and the exhibitor.

Talk to each other. Pick straws. Arm wrestle, anything to straighten out this unneccesary mess of coinciding shows. **WTT.**

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OFFICES

ATLANTA
3091 Maple Drive
Maple Center One Building
Atlanta, GA 30305
(404) 233-1817

CLEVELAND
7500 Old Oak Boulevard
Cleveland, OH 44130
Editorial: (216) 243-8100

CHICAGO
111 East Wacker Drive
Chicago, IL 60601
(312) 938-2344

SEATTLE
1333 N.W. Norcross
Seattle, WA 98177
(206) 363-2864

DULUTH
120 West Second Street
Duluth, MN 55802
(218) 727-8511

MARKETING REPRESENTATIVES

Dick Gore
Atlanta (404) 233-1817

Ron Kempner
Atlanta (404) 233-1817

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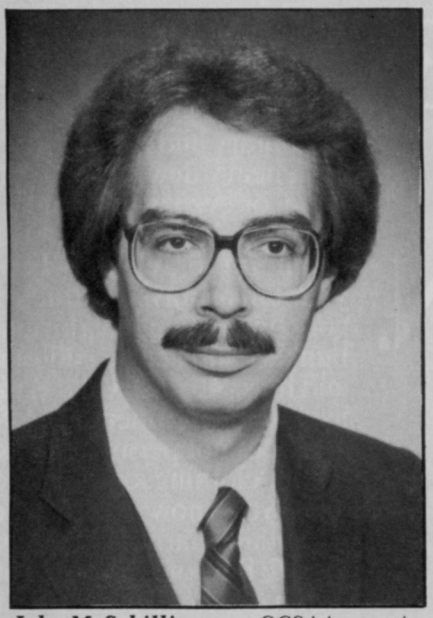
GREEN INDUSTRY NEWS



***John M. Schilling**, new GCSAA executive director.*

ASSOCIATIONS

GCSAA promotes Schilling to top job

Modesty and hard work paid off for John Schilling in September when the Golf Course Superintendents Association of America executive committee promoted him from associate executive director to executive director. Schilling's predecessor James McLoughlin resigned in May after a controversial two years at the helm.

"Each time the association has asked him to take on new and increased management responsibilities, John has successfully responded," GCSAA President Robert Osterman said in announcing the promotion. Schilling has served GCSAA in the past as director of communications, editor of *Golf Course Management* magazine, director of marketing and sales, and associate executive director. He was graduated from the University of Kansas with a bachelor's degree in journalism and a master's in business administration. Schilling retains his responsibilities as director of conference and show.

"I sense an overwhelmingly demonstrated mandate from the membership to set new standards in program development, membership services and fiscal management. All of these areas are of high priority and I urge every member to take an active role in shaping the future of the Association. The Association is accountable to its members. Now is the time, not for long speeches, but for results."

EQUIPMENT

Briggs managers work line as strike enters third month

Briggs & Stratton union workers were still on strike in late September as the critical lawn and garden manufacturing period approached. Department managers have been able to keep one out of twelve lines operating since August 1 when the strike began.

"The critical period for lawn and garden equipment production is October through January and for snow equipment March through May," Advertising Manager Jim Metzger told *Weeds Trees & Turf*. "Once the union does return it will take three weeks to get all assembly lines going again."

"I've been running a punch press the past few weeks and in a way it's been a valuable experience," says Metzger. "Some of our customers have noticed small improvements in detail since the managers have been on the line. Normally desk-bound executives are assembling engines ranging from 3 to 11 h.p. and we can see results from our enthusiasm."

The union workers currently are paid $12.85 up to $23 per hour. In arbitration they have complained about the size of dividends given to stockholders and the work assignment powers of the company. Like other union members, they are concerned about future production techniques, such as robotics.

"We don't expect a critical supply problem until November," Metzger said. "Even with new blade-stop regulations, lawn and garden sales have surpassed manufacturers' expectations." The snow equipment business is roaring back, too, after two or three bad years."

Honda to build North Carolina plant

American Honda Motor Company will produce Honda power lawnmowers at a new, wholly-owned subsidiary, Honda Power Equipment Mfg, Inc. to be located in Alamance County, NC, near Burlington.

According to Makoto Itabashi, president of HPE and executive vice president of American Honda, "We have chosen this location because the demand for Honda power lawnmowers is growing in the Eastern United States. Since we manufacture products where our sales are greatest, this allows us to return the proceeds of our efforts to the local economy."

Located on 69 acres, the $10 million investment will include a 60,000 square-foot plant which will employ 80 people. Nearly 10,000 self-propelled and push lawnmowers of around four horsepower will be produced each month at full production. The facility will include welding, die casting, and paint operations.

"Construction will begin immediately," said Itabashi, "and we expect to begin shipments by mid-1984."

CHEMICALS

Schering AG buys FBC from Boots, Fisons

In an effort to get away from research-intensive businesses, Boots and Fisons sold their interests in FBC Holdings Ltd. in September to the West German company Schering AG.

Both Boots and Fisons want to expand further into the U.S. pharmaceuticals market and now have $182.4 million from Schering to split.

Schering owns Nor-Am, an agricultural chemical company in Naperville, IL, and Nepera Chemical Company in Harriman, NY. The agricultural and specialty chemical divisions of FBC, which make Turcam and Nitroform, are larger than Nor-Am or Nepera.

FBC is currently located in Wilmington, Delaware. George Jones, communications manager for FBC, said a decision was expected by October whether moving will be required. Wilmington is a hub for the chemical industry with Du Pont, ICI, and FBC there. Jones said, "Nor-Am and FBC are a good fit."

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GOLF UPDATE

NGF honors 5 for service

Phyllis Meekins, Henry Thomas, Walter Keller, John Riggle and William "Old Bill" Lyons have something in common.

They have the distinction of being the first recipients of the National Golf Foundation's Outstanding Service Award, inaugurated this year to honor those "who have provided continuous and exceptional service to golf, the people who play the game and the environment in which it is played."

"It's a very impressive lot," said Joe Much, NGF acting executive director who headed the selection board. "The winners come from all over the country and represent different aspects of the golf community."

Winners will be honored at the Foundation's 10th Annual Golf Management Workshop in Las Vegas this month.

Meekins organized golf clinics for underprivileged youth and today, PGM Golf Clinics include more than 20 boys and girls. Thomas has been head professional at City Park Golf Courses in New Orleans for more than 50 years. Walter Keller has been fundraising for tournaments for the past 16 years. He also organizes clinics and seminars for physical education teachers to help them more effectively teach the game in schools. For more than 20 years, John Riggle has been executive director of the Arizona Golf Association and serves on the rules committee of many USGA events. William "Old Bill" Lyons is known in the golf community as an innovator, entrepreneur, agronomist and long-time owner-operator of the Lyons Den in Canal Fulton, OH.

Golf is gold to developers

Developing condominiums around golf courses is paying off for Golf Hosts International, the force behind Innisbrook in Tampa and Tamarron in Durango, Colorado.

During the so-called recession, Golf Hosts was able to sell condominiums on its courses for $8,000 to $15,000 more than comparable units in other residential developments. Condos facing the course or water commanded nearly $25,000 more.

Appreciation of golf course condos also exceeds that of residential property in general according to Golf Hosts, at ten percent or more per year. This fact is attracting investors to golf course condominium developments further increasing appreciation rates.

The American Society of Golf Course Architects sees this as an important signal to future golf course development. "More than a recreational facility, the golf course serves as a green belt to enhance the lifestyle of those who reside around its sculptured terrain," explains ASGCA member Arthur Hill, designer of Tamarron.

Martel is GCSAA keynoter

A "practical futurist" is how GCSAA Executive Director John Schilling describes this year's Convention speaker, Dr. Leon Martel.

Martel is an author who charts trends, demographics and changes in society to predict how these aspects will effect the country. He will tailor his speech directly to golf course superintendents.

The 1984 Golf Course Superintendents' Convention and Show is set for Jan. 28-Feb. 3 in Las Vegas.

NEWS *from page 8*

SEED

Northrup to market Park Bluegrass

The Northern Minnesota Bluegrass Growers Association has named Northrup King Co. of Minnesota as marketing agent for certified Park Kentucky Bluegrass. The variety was previously handled by Twin City Seed Co.

Northrup King will develop a marketing program aimed primarily at the wholesale seed trade. The marketing effort will be handled by Northrup King's Consumer Products Group. The company has been a wholesaler of Park seed for many years.

Larry Vetter, sales manager for Northrup King's Medalist Turf Products and wholesale activity, said "There is growing interest in varieties such as Park that are in the low maintenance category, both straight and in mixtures. As a result, we are planning a new and expanded sales program for this superior performing variety."

EQUIPMENT

Jacobsen names Kimpfbeck new director

Curt Kimpfbeck has been named the director of international distribution for Jacobsen Division of Textron Inc.

Kimpfbeck will be responsible for increasing Jacobsen's international

sales through the company's network of more than 50 foreign distributors located in Europe, South and Central America, Africa, Asia and Australia.

Prior to joining Jacobsen,

continued on page 14

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LANDSCAPE UPDATE

ALCA, NAA, PLCAA offer seminar

The Associated Landscape Contractors of America, the National Arborist Association and the Professional Lawn Care Association of America will jointly sponsor a series of two-day financial seminars Dec. 1-9.

The seminars are designed for owners, chief executive officers, chief operating officers and other top management of Green Industry companies. The seminars will be held at the Schaumberg Marriott Hotel in the Chicago area.

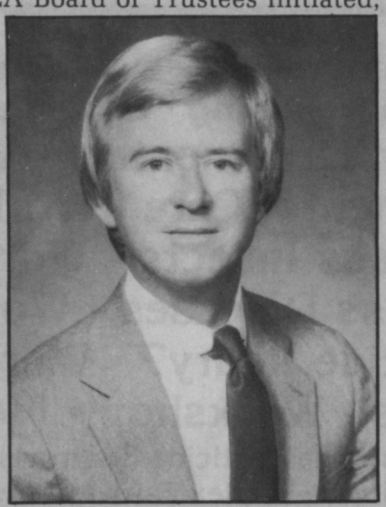
Ross-Payne & Associates, Inc., a finanacial consulting firm, will conduct the seminars which include "Compensation Planning," "Financial Analysis," and "Financial Planning." Enrollment in some courses is limited. For registration information contact ALCA, (703) 821-8611, NAA (516) 221-3082 or PLCAA (404) 977-5222.

Able named ASLA executive v.p.

Edward H. Able, Jr., has been named executive vice president of the American Society of Landscape Architects.

The appointment was made by the ASLA Executive Committee at a recent meeting in Washington, D.C.

"This action, which the ASLA Board of Trustees initiated, was taken to more accurately reflect the level of responsibility and authority which has been delegated to our chief staff executive," said ASLA President Theodore J. Wirth, FASLA.



Able, executive director of the Society since 1977, has managed ASLA during a period in which the membership has grown from 3,000 to 7,000, the annual budget has tripled and the Society has restored and occupied its own headquarters building in Washington, D.C.

"Working with and for the profession of landscape architecture over the past six years has been one of the most satisfying periods of my career," Able told WT&T. "I am extremely pleased that ASLA's leadership has expressed its confidence in me by naming me executive vice president and I look forward to many years of joint effort in the future."

Udall becomes honorary architect

Calling Morris K. Udall (D-AZ) "a champion of environmental protection and planning", ASLA President Ted Wirth presented the representative honorary membership in the Society during the Professional Awards Ceremony in Washington, D.C., in September.

Udall, chairman of the House Interior and Insular Affairs Committee, has been a leader in environmental legislation since 1961, including the Alaska Lands Bill, strip mining laws and the Nuclear Waste Management Policy Act.

NEWS *from page 10*

Kimpfbeck was export manager for Wacker Corp. in Milwaukee. He had previously been manager of export services for the Oster Division of Sunbeam Corp.

TURF

First Pan-Pacific turf conference in Hawaii

The first Pan-Pacific Turfgrass Conference has been scheduled for June, 1984 in Honolulu. The conference is sponsored by the Hawaii Turfgrass Association and the University of Hawaii.

Seminars, workshops, an equipment exhibition and trade show are planned.

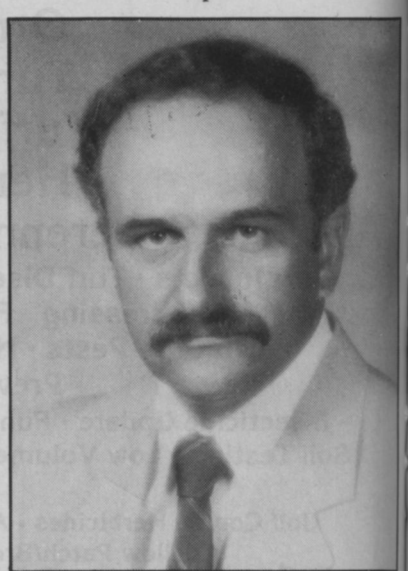
Following the conference, a tour of turfgrass sites and golf courses on Maui and Honolulu can be arranged for those interested.

For registration information, contact Karen Bento, PO Box 31003, Honolulu, HI 96820.

EQUIPMENT

Adam, Lehman named to Ransomes' top posts

Helmut M. Adam has been appointed president and Rowland R. Lehman executive vice president of Ransomes, Inc., manufacturers and worldwide marketers of Ransomes Bob-Cat commercial turf maintenance equipment.

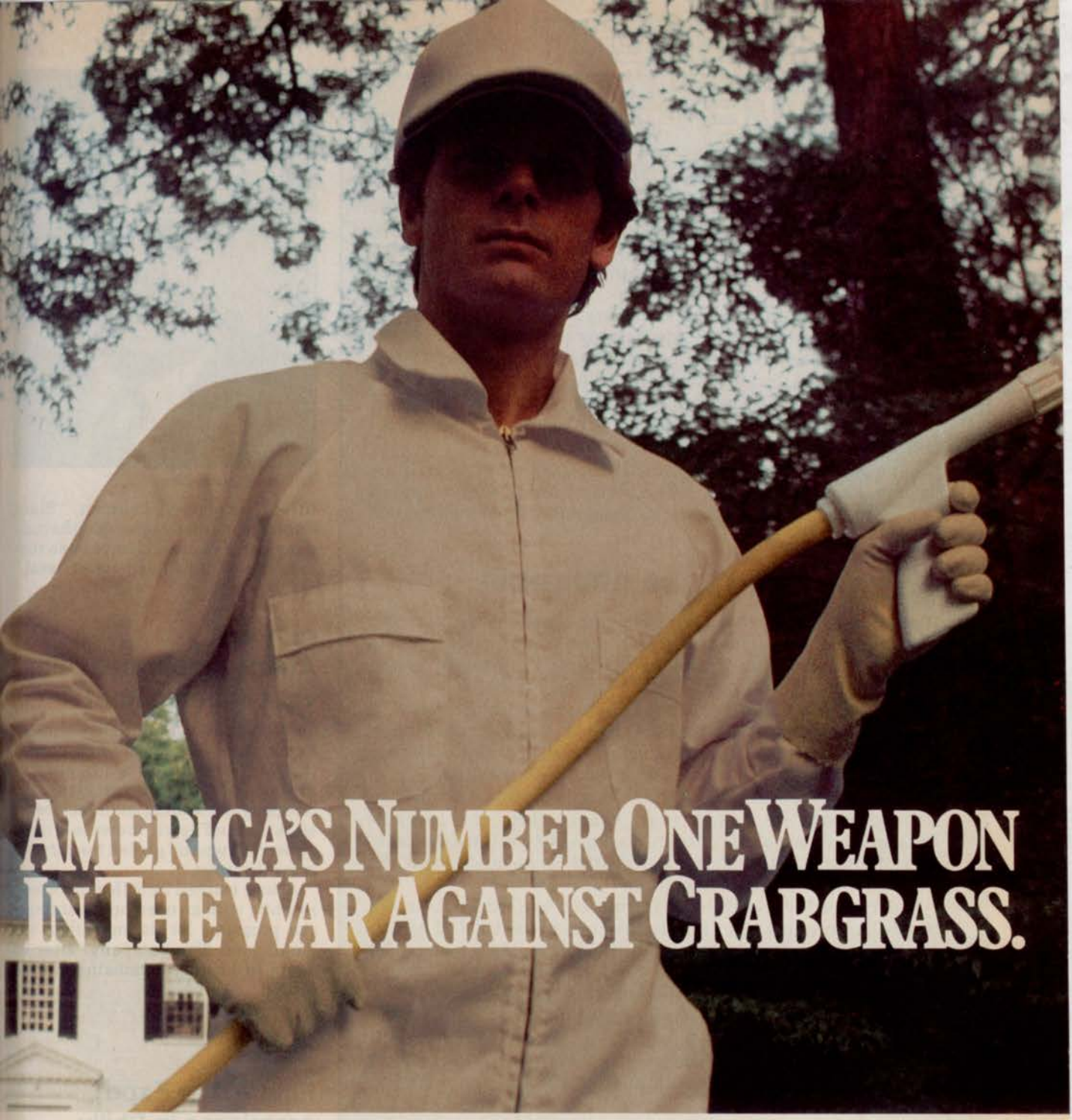


Helmut M. Adam

Adam was formerly vice president of finance and operations and Lehman was vice president of marketing.

"It's really just a formalizing of

continued on page 16



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Circle No. 124 on Reader Inquiry Card

GOVERNMENT UPDATE

Training termed "inadequate"

A recent report by the General Accounting Office to the Environmental Protection Agency stated applicator training in a number of states does not meet Federal standards and, as a result, does not adequately train applicators to avoid pesticide misuse.

Illinois and Minnesota were two states selected by EPA to show shortcomings in pesticide training and certification. GAO said the conditions exist in other states, too, and that EPA is partly to blame for the problem. EPA, said the report, has contributed to the situation because it has never developed criteria for evaluating test quality and has not conducted in-depth reviews of state examinations since 1976.

The report was presented to EPA Adminstrator William Ruckelshaus, who was the first administrator of the Agency and recently returned after the resignation of Ann Gorsuch Burford.

33 groups oppose envirobill

An amazing cooperative effort by 33 organizations representing pesticide users and manufacturers has voiced opposition to each member of the House Agriculture Committee to the "Harper's Ferry bill", a proposal to amend FIFRA.

Saying the amendments are "premature and unnecessary", a letter to the committee members strongly urged opposition to the bill by the committee until the new administrator's staff has had time to make its own recommendations for FIFRA.

Among the 33 organizations are the American Association of Nurserymen, the Seed Trade Association, the Interior Plantscape Association, the Professional Lawn Care Association of America, the National Arborist Association, and the National Pest Control Association.

The Harper's Ferry Bill was introduced by George E. Brown Jr. (D-CA) in late winter and is basically a want list of all the environmental groups in one bill. "Every point raised by environmental groups in the past is being revived by this bill," says Ray Brush, director of technical services at AAN. "If it were passed it would be like starting all over again."

Bills for extending FIFRA are in Congress at the same time. It is likely both houses will extend the FIFRA with few amendments in order to give new Administrator Ruckleshaus time to evaluate it."

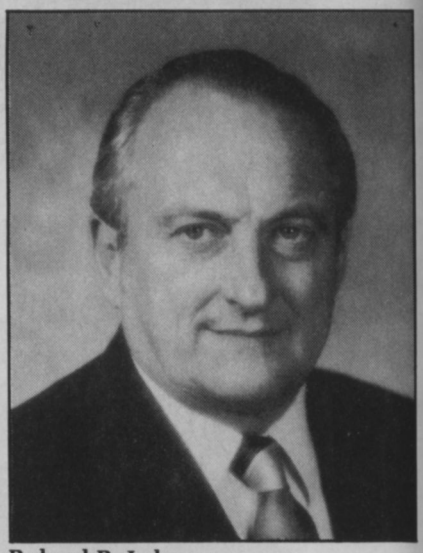
Nova Scotia backs 2,4-D use

The Supreme Court of Nova Scotia denied an injunction on use of 2,4-D and 2,4,5,-T in September concluding that these products do not present a health hazard and can be used safely.

The case was brought to court by landowners near the forest lands of Nova Scotia Forest Industries. The landowners were concerned about groundwater in the area.

Justice Merlin Nunn stated in his 182-page decision, "I am satisfied that the overwhelming currently accepted view of responsible scientists is that there is little evidence that, for humans either 2,4-D or 2,4,5-T are mutagenic or carcinogenic and that TCDD is not an effective carcinogen, and further, that there are no-effect levels and safe levels for humans and wildlife for each of these substances."

NEWS *from page 14*



Roland R. Lehman

titles," explained Lehman. "Since Ransomes of England bought the company, Mr. Adam and I have been running it. It will be business as usual."

EQUIPMENT

Ariens celebrates 50th year in equipment

On Sept. 11, 1933, the Ariens Company began production of the first domestic-built rotary tiller at its plant in Brillion, WI. Now, 50 years later, the company is a leading manufacturer of walk-behind lawn mowers, riding mowers, lawn and garden tractors and snow throwers.

Ariens marked its 50th anniversary recently with an open house and special programs for its more than 400 employees. The company, after 50 years in business, remains family-owned.

TREES

First Arbor Expo premieres in Philly

Arbor Expo '83, Arbor Age magazine's first conference and exhibition for the tree care industry, is set for Nov. 17-19 at the Philadelphia Civic Center in Philadelphia, PA.

Educational sessions will range from tree care procedures to the business side of being a tree care professional. There will also be exhibits and outdoor equipment demonstrations.

A special conference package is available for those who register before Oct. 26. For more information and registration, contact Conference Management Corporation, 17 Washington St. Norwalk, CT 06856 (203) 852-0500.

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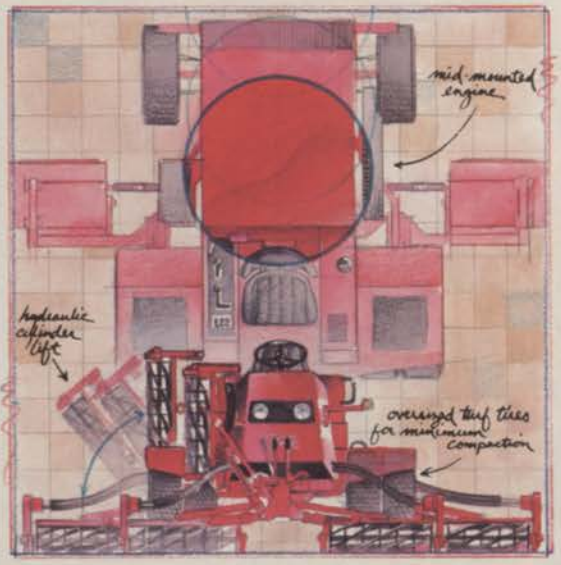

hydraulic cylinder lift raises the two outside mowers in a few seconds. So you can quickly narrow your cutting path around trees, traps, fences, flower beds, and other obstacles. Without slowing your pace.

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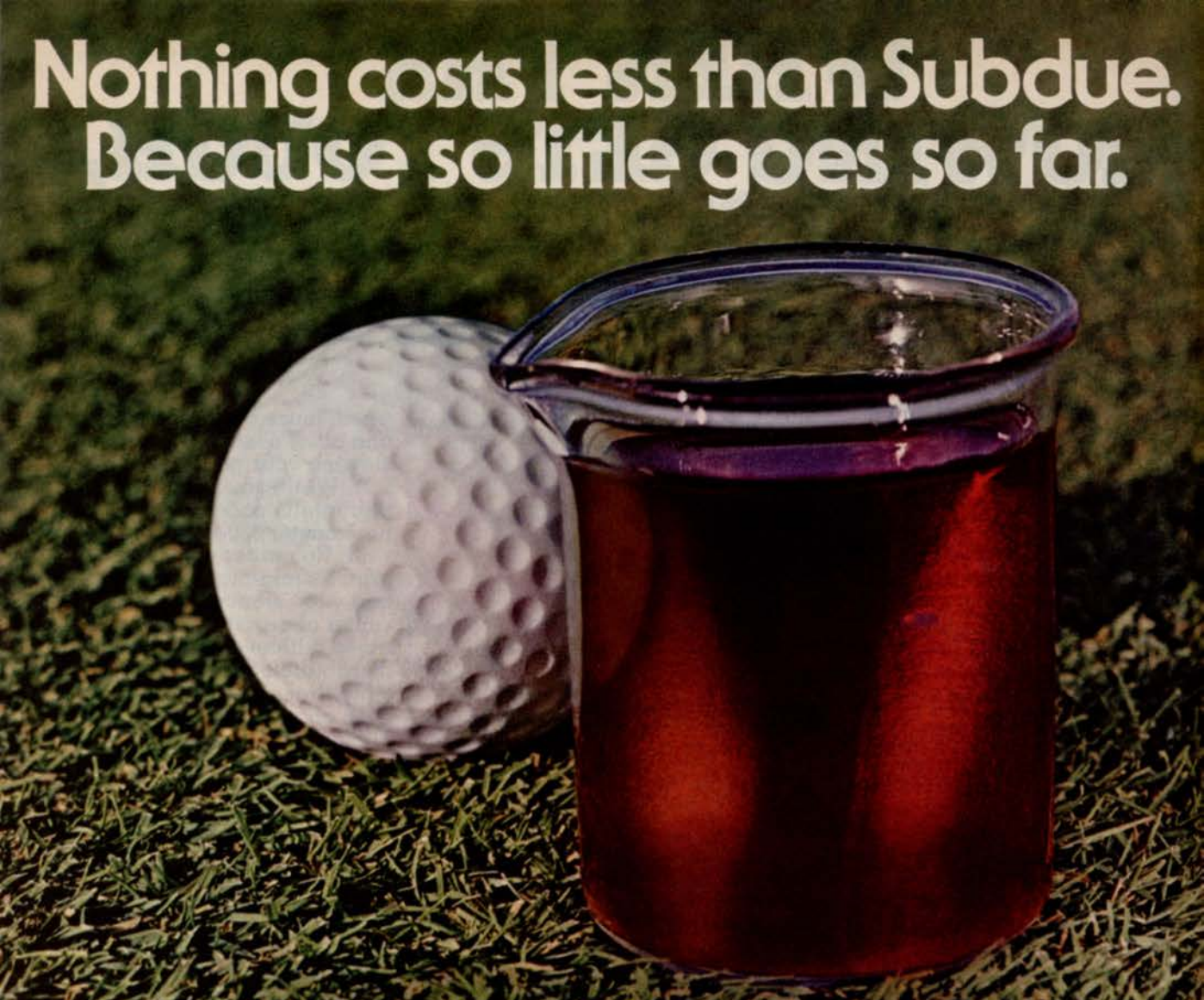

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Circle No. 219 on Reader Inquiry Card

PROBLEM SOLVERS

By Balakrishna Rao, Ph.D., and Thomas P. Mog, Ph.D

Timing Insecticides for Billbugs

Problem: *For many years we have been using insecticides for surface insect control during the months of May and June. However, we have found a number of lawns severely damaged by billbugs, which become apparent during late August. Around this time, we have found many adults. Do you think we can get control of these pests if we apply treatments in August and September? Would you please explain the possible reasons for poor control from our existing practice. Also, we would appreciate your recommendation for proper management of the billbug problem. (New York)*

Solution: Billbugs can cause serious damage to turfgrass unless they are properly managed. For best results, as with any pest management program, it is necessary to have proper identification of the pest, proper pesticides, proper methodology and proper timing. Any mistakes in these areas would result in variable performance and might explain the reasons why you have been experiencing billbug problems. Further, it is important to know the life cycle of the billbug and administer the control program during the weak point of their developmental stages.

Billbugs overwinter as adults and become active in early spring. They feed on turf and lay their eggs in grass stems from mid-May to July. The eggs hatch in about a week and the young, legless larvae tunnel through the stems and become soil-inhabiting pests where they feed on the roots and crowns of plants from June through August.

During this period, billbug larvae can cause severe damage to lawns. However, their presence may go undetected because the damaged area will be masked by drought symptoms and, thus, often mistaken for moisture stress. If, with the onset of cool weather and rain during late August and September, the brown areas do not green up properly, close examination may reveal surface insect activity. You may find billbug adults alone or in combination with chinchbugs, sod webworms, etc.

August is not preferred timing for insecticide application for adult billbug control because during this period most of them might not have emerged as adults or some of them might be moving to overwintering sites in nearby vegetation.

Because of lack of information about fall treatment for billbugs, I suggest that you try a fall treatment on a small test plot first and study the rsults. Research conducted by Dr. H.D. Niemczyk, Ohio Agricultural Research and Development Center, Wooster, OH, suggests that a mid-April application of insecticide gives best billbug control. The objective is to remove the egg-laying population so that there will not be any future generations. If this is not feasible, then the next best time would be during the larvae feeding period from June through August. Larvae control is difficult because they are in a protected site in the plant stems or may have moved into the soil, becoming soil-inhabiting pests. Therefore, the performance of the insecticide applications may be variable which explains the reasons why you are experiencing poor results with your existing program.

We feel that it is to your advantage not to use any chemical during August; instead make a note of those lawns severely damaged by billbugs and treat those lawns in early spring for adult control. Severely damaged areas should be overseeded with compatible turfgrass cultivars.

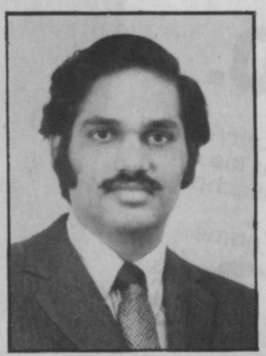
Delaying winter turf dormancy

Problem: *Every year in response to winter dormancy warm-season grasses, such as bermudagrass and zoysiagrass, show discoloration. We would appreciate your suggestions on how we can make the grass area look greener.(North Carolina)*

Solution: Reports indicate that warm-season grasses go dormant and become brown for a period of three or more months when the temperature falls below 50 degrees Farenheit or when there is intense light during daytime and temperatures in the evening reach about 49 degrees Farenheit. Under these conditions, chlorophyll pigment will be destroyed and photosynthesis is disrupted. In some instances, frost can also injure cells and thus contribute to the discoloration.

To minimize or mask the brown turf, I found the following suggestions in reference literature. Fall vertical mowing in combination with late fall fertilization has provided satisfactory results. Use of improved hybrid bermudagrass has reduced the length of the dormancy period. The practical approach would be to overseed the dormant turfgrass with cool-season grasses such as ryegrass, bluegrass or fescues. However, the overseeding operation is time-consuming, expensive and, if not done at the proper time, ineffective. Because of these problems much attention has been directed to the use of turfgrass colorants.

Since we do not have much information on colorants, I would suggest you use them on a small test plot to learn the advantages and disadvantages. Studies made by Cal Poly researchers on turf colorants might serve as a good reference for you.



Balakrishna Rao is plant pathologist and Thomas Mog is pest management specialist for Davey Tree Expert Co., Kent, OH.

Questions should be mailed to Problem Solvers, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Please allow 2-3 months for an answer to appear in the magazine.

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Circle No. 128 on Reader Inquiry Card

Golf Car Makers Hope To Break Out of Slump With Innovations in '84

By **Bruce Shank**, executive editor

The golf car market has suffered for two years as golf course managers have rebuilt their existing fleets and bought used golf cars rather than new ones. Manufacturers, sensing a turnaround, are improving their products for the golf car sales battle of 1984.

Competition is fierce. "We not only have to compete on quality," said Jerry Howell, sales manager for Ross Products, the new manufacturer of the Legend golf car, "but distribution arrangements can save $150 per car, or the difference between selling a fleet and not selling one. Golf courses can buy cars for less today than two years ago."

"We know from our parts business the last two years golf courses are rebuilding cars rather than buying new ones," Martha Ann Smith of Melex told *Weeds Trees & Turf*. "Our dealers think 1984 will be the year for new car sales to recover."

Changes and introductions

The parts business is showing manufacturers where the problems are with their cars. Electric car makers are simplifying and improving electrical systems to extend battery life, shorten charging time, and reduce the number of parts which can malfunction. Gas car makers are switching to four-cycle engines or adding oil injection systems to eliminate the need for mixing oil and gas in two-cycle engines.

A number of companies are beefing up suspension and brake systems, totally redesigning electrical and exhaust systems, and most important, changing the appearance of their new models. Steering systems are being upgraded to rack and pinion.

The emphasis is clearly on fuel efficiency, reliability, and appearance.

Club Car, Inc., introduced its first four-cycle engine golf car in August after five years of research and development. The company says the engine in its new DS Gasoline was designed specifically for use in golf cars. It was designed to run quietly, with less vibration, and to last longer.

Yamaha has added automatic oil mixing to its two-cycle engines as well as solid state ignition, eliminating points and condenser.

American Continental offers an 'electronic speed controller' on its electric cars to cut charging time by 45 percent and increase battery life.

Melex has simplified its electrical system, reduced resistance in its power cables, and added tires with less resistance. Melex will introduce a 'totally new car' next year.

Ross, which took over production of the Legend electric car this year from Pargo, has redesigned its electrical system to include only one solenoid instead of five. The differential has been changed for more efficient use of power from the electric motor. The front suspension has been beefed up, rack and pinion steering has been added, and mechanical cast iron drum brakes have been added. The new Legend car body has been redesigned and weighs less.

Columbia Car Corp. is introducing a shorter version of its four-wheel electric Cruiser, called the Challenger. The Challenger costs $210 less than the Cruiser. The company has also redesigned its line of three-wheel cars.

"More than the name has changed," said Columbia District Sales Manager Barry Noll. "We've decreased the sound on our gas models by 30 percent and made major design changes on our complete line. We are also the only U.S. golf car manufacturer that makes its own engines."

Columbia has had its problems since it purchased the Harley

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Dacthal® W-75 herbicide. The leader is back on the market. It's the standard of excellence in turf preemergence weed control and it's readily available for the '84 season.

Whether it's crabgrass, spurge or 21 other annual grasses and broadleaf weeds in turf and ornamentals, nothing works better than Dacthal W-75.

Go with the best in 1984. Dacthal W-75.

Dacamine® 4D herbicide. Kills perennials better than ordinary 2,4-D. Dacamine 4D virtually eliminates the possibility of weed regrowth. It works particularly well on plantain and 70 other tough perennials.

Dacamine 4D also delivers broader spectrum weed kill than ordinary 2,4-D.

And since Dacamine 4D is non-volatile, it won't vaporize even in hot weather. So there's no risk of injury to nearby ornamentals from vapors.

2 Plus 2 (MCPP + 2,4-D Amine). Tough on weeds, easy on the pocketbook. Designed in a convenient package mix, 2 Plus 2 delivers economical control of pesky common broadleaf weeds such as clover and dandelion on turf and fairways.

For broad spectrum control that's tender on grass and non-harmful to tree roots, use 2 Plus 2.

Daconate® 6 and Bueno® 6 post-emergent herbicides. Proven performers. Especially effective on such tough weeds as nutsedge, chickweed, wood sorrel, crabgrass and many other grassy weeds.

Both products are ready-to-use liquids with built-in surfactants for uniform wetting (Bueno 6 is sold only in western states for use on turf).

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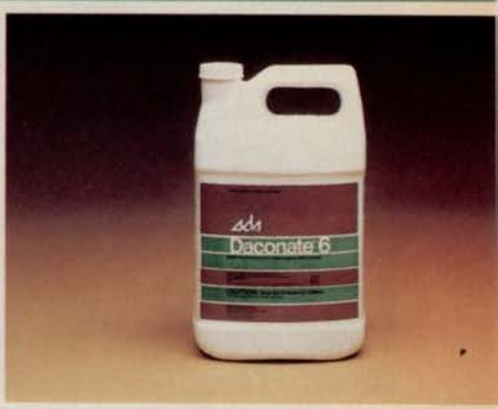
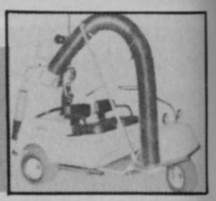
Dacamine
4D

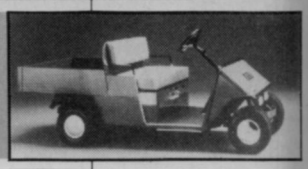

Daconate 6

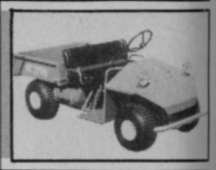
GOLF CARS *from page 22*

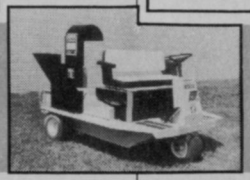
1984 Turf Vehicle Guide

	Model	engine	payload	price	notes
American Continental, Inc. Box 280 Willmar, MN 56201 (612) 235-1752	Elphant-Vac	17 hp Kohler			vacuum cart
Bajaj America 1237 Gaddsen St. Columbia, SC 29201 (805) 779-5361	Gopher Tristar Autoriksha	10 hp gas 10 hp gas 10 hp gas	700 lbs 700 lbs 700 lbs	$2,695 $2,895 $3,095	
Columbia Car Corp. P. O. Box 1 Deerfield, WI 53531 (608) 764-5474	Utility Car	2 cycle	500 lbs	$3,220	4-wheel
Cushman/OMC P. O. Box 82409 Lincoln, NE 68501 (402) 475-9581	530 531 and 532 534 549	18 hp gas 18 hp gas gas gas	1,500 lbs 1,500 lbs 1,000 lbs 250 lbs		
E-Z-Go/Textron P. O. Box 388 Augusta, GA 30913 (404) 798-4311	GX-800 GT-7	244 cc gas gas	800 lbs 1,500 lbs		
Hahn Inc. 1625 N. Garvin Evansville, IN 47711 (812) 428-2027	Tournament Spray-Pro	gas gas			
Carl Heald Inc. P. O. Box 1148 Benton Harbor, MI 49022 (616) 849-3400	Hauler Kits	gas, 4-cy	650 lbs	$1,500 and up	
Jacobsen/Textron 1721 Packard Ave. Racine, WI 53403 (414) 637-6711	UV-4	gas	1,500 lbs		
Noland Car Co. P. O. Box 957 Edgewater, FL 32032 (904) 427-9645	Model F	electric	1,500 lbs		
Olathe Mfg. Co. 100 Industrial Pkwy. Industrial Airport, KS 66031 (913) 782-4396	492	18 hp gas	1,500 lbs	$4,400	
Pargo Eagle 8181 Hoyle Ave. Dallas, TX 75227 (214) 388-7431	Estate Car	electric			





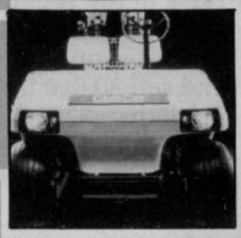




	Model	engine	payload	price	notes
Smithco Inc. 11 West Ave. Wayne, PA 19087	Red Rider	gas	1,000 lbs		
Turf-Vac Corp. P.O. Box 90129 Long Beach, CA 90809 (213) 426-9376	Sandancer #1 Sandancer #2 Sandancer #5 Sandancer #6	11 hp Briggs 18 hp Briggs 11 hp Briggs 18 hp Briggs	1,100 lbs 1,500 lbs 1,100 lbs 1,500 lbs	$3,862 $4,546 $4,377 $5,080	4 ft. bed, 3-wheel 4 ft. bed, 3-wheel 5 ft. bed, 4-wheel 5 ft. bed, 4-wheel

1984 Golf Car Guide

	Model	engine	payload	price	notes
American Continental Inc. Box 280 Willmar, MN 56201 (612) 235-1752	ACG 300 ACG 4000 ACE 300 ACE 4000	4-cycle 4-cycle electric electric	2,000 lbs 2,000 lbs 2,000 lbs 2,000 lbs	$2,950 $3,195 $2,950 $3,195	3-wheel 4-wheel 3-wheel 4-wheel
Club Car P. O. Box 4658 Augusta, Georgia 30907 (404) 863-3000	DS Electric DS Gas DS Villager DS Carryall	electric 4-cycle electric electric	750 lbs 750 lbs 1,000 lbs 1,000 lbs	$3,295 $3,492 $3,623 $3,623	4-wheel 4-wheel 4-wheel 4-wheel
Columbia Car Corp. P. O. Box 1 Deerfield, WI 53531 (608) 764-5474	Classic G3T Classic G3S Classic E3T Classic E3S Cruiser G4S Cruiser E4S Challenger	2-cycle 2-cycle electric electric 2-cycle electric electric	615 lbs 615 lbs 523 lbs 523 lbs 716 lbs 641 lbs 641 lbs	$3,175 $3,225 $3,110 $3,190 $3,500 $3,650 $3,340	tiller, 3-wheel steer, 3-wheel tiller, 3-wheel steer, 3-wheel 4- wheel 4- wheel 4-wheel, shorter
E-Z-Go/Textron P. O. Box 388 Augusta, GA 30913 (404) 798-4311	X440 X444 GX440 GX444	electric electric 2-cycle 2-cycle	500 lbs 500 lbs 500 lbs 500 lbs		
Melex USA 1201 Front St. Raleigh, NC 27609 (919) 828-7645	Turtle 112 Turtle 212	electric electric	500 lbs 500 lbs	$3,050 $3,215	3-wheel 4-wheel
Ross Products 145 NW 20th St. Boca Raton, FL 33431 (305) 395-4414	Legend RV3 Legend RV4	electric electric	750 lbs 750 lbs	$3,085 $3,215	3- wheel 4- wheel
Yamaha Motor Corp. 6555 Katella Ave. Cypress, CA 90630 (714) 761-7300	Electric Car Gas Car	electric 2-cycle	1,000 lbs 1,000 lbs	$2,850 $3,450	4-wheel 4-wheel



Davidson golf car line. A fire at its Madison, WI, plant held up production for four months. The company has moved a second time to Deerfield, WI, and is back in production.

The stakes

Although the market has experienced the departure of Harley Davidson and Cushman in the past few years, it has attracted Yamaha and Melex.

The National Golf Foundation has estimated there are roughly 450,000 golf cars in use in this country. Five to seven years is the most commonly quoted life expectancy for a golf car. In a normal year, manufacturers would expect to sell a total of 60,000 to 90,000 replacement cars, plus any sales to the roughly 50 to 75 new courses built each year. So, the market should normally produce and sell 80,000 units at a value of more than $200 million.

It's questionable whether manufacturers have realized the full potential of the market, especially the last two years. They seem ready to make the necessary investment in 1984. But, there is also a sense that they won't wait forever for business to recover.

> "It's as if no one at golf courses wants to be responsible for golf cars." Dealer.

Who is in charge?

A problem mentioned frequently by golf car makers is finding out who is in charge of golf cars at a course. They know how important money maker cars can be to a club and they can't understand why the person responsible for the cars varies from the superintendent, to the pro, to the club manager.

"It's as if no one wants to be responsible for golf cars," one distributor said. "The superintendent views golf cars as the enemy, tearing up his beloved turf. The pro wants a piece of the action and the club manager wants the cars to make as much money as possible by spending as little as possible." It seems manufacturers would like golf courses to make some standard commitment to golf car operations rather than treating it as a necessary evil.

"Clubs the last few years have been playing one golf car dealer against another, seeking a rock bottom price," one dealer said. "In some cases, they have gone around the dealer directly to the manufacturer. They should be thinking more about service and quality than price. When we are trying to sell a fleet of 20 cars worth $60,000, we get anxious and start making concessions we really shouldn't make."

One short-term solution has been leasing. Some clubs have chosen to lease cars at $750 per car per year rather than pay $3,000

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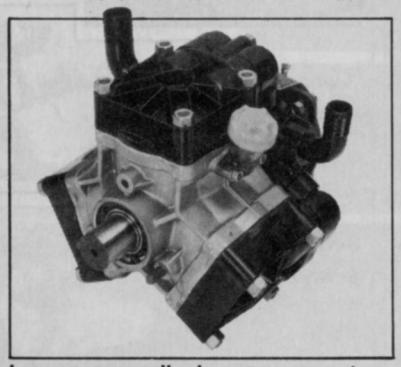

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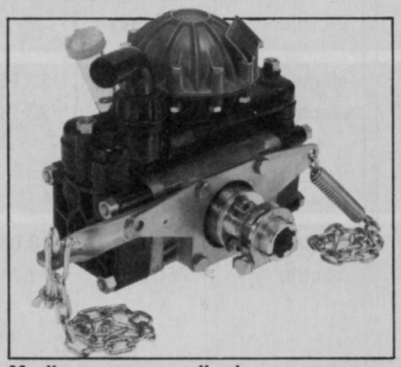
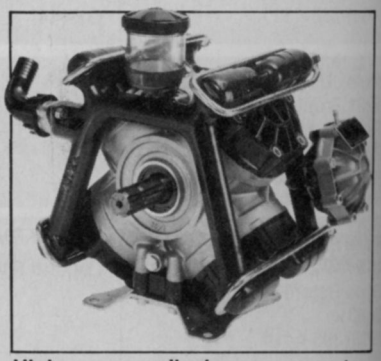


Medium pressure diaphragm pumps, to 580 psi, with outputs to 13 gpm.



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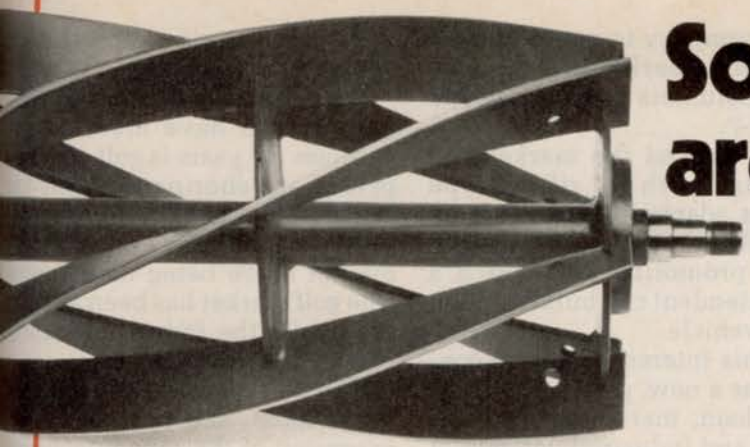

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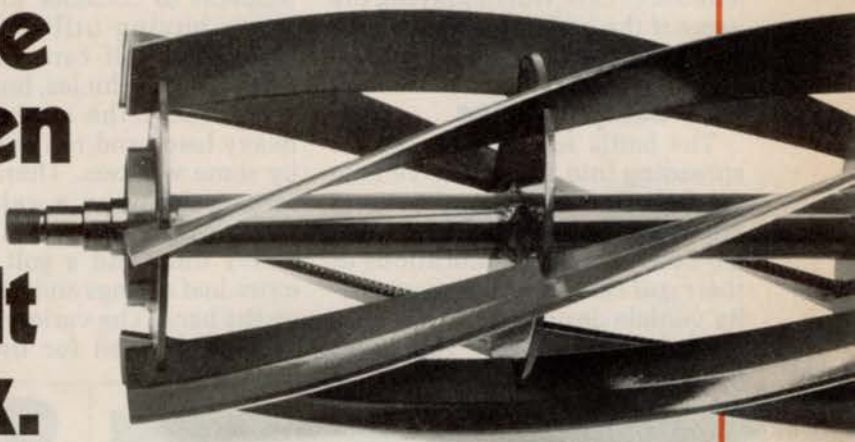

There's a big difference.

The part on the right is designed, manufactured, specified, stocked, sold and guaranteed for 1 full year by Jacobsen. It does a whole lot more than just fit. It works perfectly.

The part on the left has been manufactured to fit Jacobsen equipment. It looks like a Jacobsen part but doesn't always work as well. In fact, in the area of key part replacement, not using a Jacobsen part can result in severe damage to equipment.

We think that customers buy parts based upon their ability to deliver maximum performance, dependability and and long life and we do everything possible to insure these qualities in every genuine Jacobsen part.

Jacobsen parts are designed and manufactured by the people who design and manufacture our original equipment. This insures the highest and most consistent quality in the areas of materials and workmanship. For example, the metals used in Jacobsen parts meet exacting specifications in the areas of composition, hardness and heat treatment. And permanent tooling maintains uniformly high results in the forming, drilling, punching and machining of every Jacobsen part.

So, whether you're buying gears, bedknives, wheels, filters or any replacement part for Jacobsen equipment, remember the difference. Some parts are built to fit. Jacobsen parts are built to work...beautifully.

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per car to buy. Operation costs for golf cars have been determined and published by NGF and the Golf Course Superintendents Association. Leasing may or may not be the best use of golf course dollars depending upon the cash position of the course.

It would seem that golf courses should decide either to encourage use of golf cars and manage them properly or restrict their use on the course. The halfway position currently taken by many courses is causing manufacturers confusion and doubt. The stakes are worth playing the game if the odds improve for the manufacturers.

New utility vehicles

The battle for golf car sales is spreading into the utility vehicle market. Golf car manufacturers are expanding into the turf vehicle market with modifications of their golf cars as well as new utility vehicle designs.

Columbia Car is the most recent company to enter the utility vehicle market. E-Z-Go preceded Columbia with its GX-800 and GT-7.

Bajaj entered the market two years ago with its riksha-type vehicles adapted for carrying up to 700 lbs of payload. Carl Heald Inc. is promoting kits which a superintendent can build his own utility vehicle.

All this interest might be construed as a new, growing market. Gary Sloan, marketing manager for turf and industrial vehicles at Cushman/OMC, urges superintendents to consider their needs when buying utility vehicles. "Modified golf cars are fine as light utility vehicles, but may fall short under the strain of daily heavy loads and rough treatment by some workers. There is a difference between a vehicle that was designed and built to be heavy duty and a golf car with extra leaf springs and a metal box on the back. The variety of attachments designed for use with a vehicle is also very important to a superintendent."

The general sentiment by companies who have made utility vehicles for years is golf car companies are shoring up their car business by modifying cars for other uses. They see some of their market share being taken away. The golf market has been a steady one while the industrial vehicle market has faltered.

Golf car manufacturers, on the other hand, see it as a natural extension of their manufacturing process and their distribution and service networks. They are evaluating attachments for their utility vehicles.

Over the next few years superintendents and other users of turf utility vehicles will have a larger selection of turf vehicles and attachments for them. The modified golf cars will probably cost less than heavy-duty vehicles. In the long run it will be durability and variety of attachments that will win the war. WTT

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Fertilizer Guide

Early December *color response from a late October application of nitrogen in New Jersey. (Photo courtesy of Dr. Ralph Engel)*

Part 2: A Balance Between Health and Appearance

By Roger Funk, Vice President, Research and Development, and Richard Rathjens, Agronomist, Davey Tree Expert Co., Kent, Ohio

Traditionally, turfgrass managers have applied fertilizer during spring and fall using leaf color and amount of growth as a guide to the rate and the frequency of application.

Although promoting good color and stimulating shoot growth are important objectives, frequently overlooked are nutrient influences on carbohydrate reserves, root growth, and the plant's ability to tolerate disease and environmental stress.

Timing applications

An important objective in the timing of fertilizer applications should be to build carbohydrate reserves and promote root development. The response of warm-season and cool-season turfgrasses differ in this respect.

The predominant cool-season turfgrasses (bluegrass, ryegrass, fescue and bentgrass) initiate and develop their root system in the early spring and fall. For this reason, fall and winter applications of nitrogen are important to a fertilization program because they will increase carbohydrate reserves and root growth. Fall fertilization will also improve turf density by promoting greater rhizome and tiller growth.

In addition to regular fall fertilization (September and early October in Ohio), a relatively new concept called late fall fertilization is being included in many maintenance programs. Late fall fertilization is applied when shoot growth slows or approximately at the time of the last regular mowing of the season. Nitrogen applied at this time greatly enhances the photosynthetic production of carbohydrates. These carbohydrates are stored for use the following growing season

for Turf

providing spring green-up and an energy source for turfgrasses to recuperate from environmental and mechanical stress.

Another advantage of late fall fertilization is it reduces the need for high amounts of spring-applied nitrogen. Excessive spring fertilization can actually reduce carbohydrate reserves and root development by stimulating rapid shoot growth. Shoot growth takes priority over roots for carbohydrate utilization.

Applications of potassium will increase turf hardiness and tempers the stimulation of nitrogen applications.

Both spring and summer fertilization should be used to maintain the color and density produced with fall fertilization the previous year. Fertilization at these times *should not* produce succulent plant tissue which can increase the severity of turfgrass disease and reduce the plant's ability to withstand heat, drought, mowing or wear stresses.

Applications of potassium will greatly contribute to the hardiness of the plant and help "temper" the stimulating effects of nitrogen applications.

In contrast, most of the root growth in warm-season grasses (such as bermudagrass, zoysiagrass and St. Augustine) occurs during the spring and summer. Fertilization during these periods will stimulate root growth. However, only moderate applications of fertilizer should be made in early spring in areas where warm-season grasses experience winter dormancy.

Bermudagrass and St. Augustine are subject to spring root dieback following spring green-up. Heavy fertilization during early spring may result in an additional stress during this critical survival period.

Like cool-season turfgrasses, warm-season turfgrasses accumulate carbohydrate reserves in the fall when shoot growth slows. Care must be taken with the timing of fall fertilization since it may decrease low temperature hardiness if applied late. Maintaining adequate potassium levels in fall will increase the tolerance of warm-season grasses to low temperatures.

As with cool-season turfgrasses, indescriminate use of nitrogen fertilization in the summer can increase injury of warm-season grass subjected to disease or environmental stress.

Potassium will aid warm-season turfgrasses in tolerating heat, cold, mowing, and wear stresses, and reduce their susceptibility to turfgrass diseases.

Turf fertilization rates

The annual nitrogen requirement (lbs. per 1,000 square feet) for turfgrasses should be determined by considering length of growing season, level of quality desired, purpose of the turf, and species and cultivars present.

The length of growing season or number of days (months) between the last killing frost in the spring and the first in the fall will vary greatly depending upon location. Along the Gulf of Mexico and in parts of Arizona and California, the average growing season is more than eight months. In contrast, it is less than four months in parts of Maine and Minnesota. The longer the length of growing season, the greater the amount of nitrogen need to maintain turfgrass quality.

The rate of fertilization should be tailored to meet the expectations of the user of a particular turfgrass site. Because the level of quality is subject to interpretation, residential lawn fertilization can range from promoting a weed-

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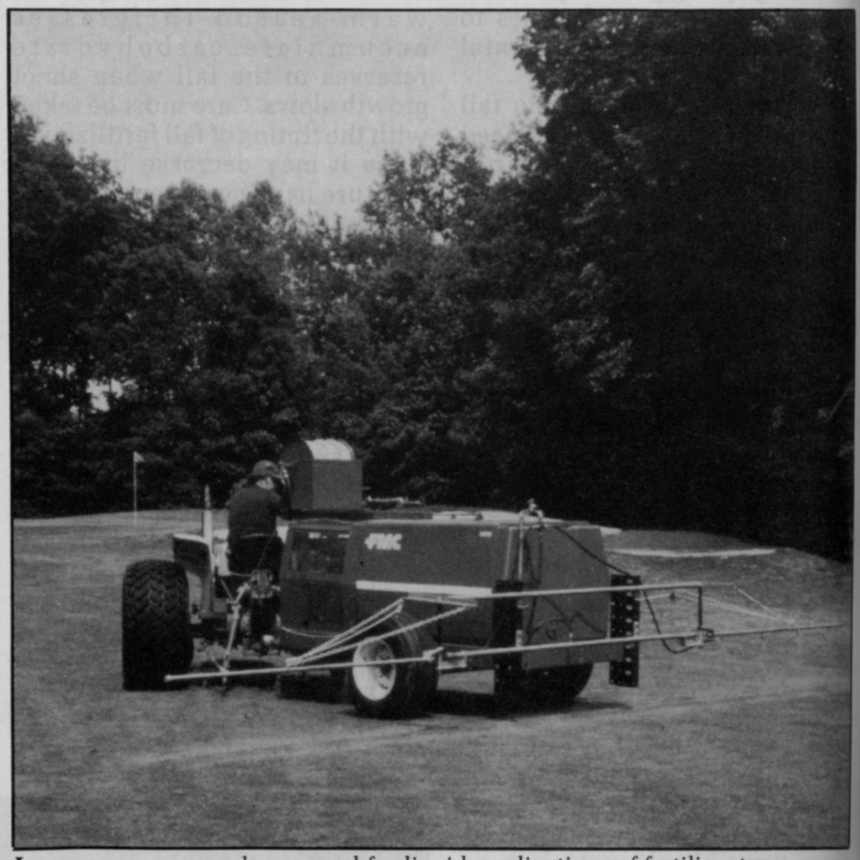
Fertilizer



***Low-pressure spray** boom used for liquid applications of fertilizer to large turf areas.*

free turf of acceptable color and density to a season-long turf of premium appearance.

The function of turf in an area, whether aesthetic or recreational, also influences nitrogen fertility level. The rate of fertilization of bentgrass, for instance can vary from 4.0 to 10 lbs. nitrogen per 1,000 square feet between a home lawn and a golf green.

Turfgrass species vary in amount of nitrogen required for maximum quality. Low fertility cool-season grasses include sheeps, hard, and red fescues. Kentucky bluegrass is considered medium fertility and bentgrass high fertility. Improved cultivars of bermudagrass will require more nitrogen than common bermudagrass.

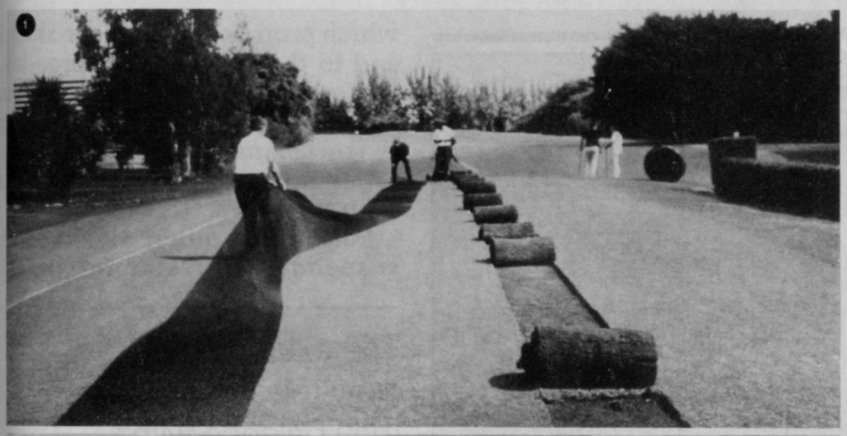
Cultural practices, such as irrigation and clipping removal may create a need for additional nitrogen. Supplemental watering of turfgrasses will increase the rate at which nitrogen is leached from the turfgrass root zone. Losses of nitrogen are substantial when quick-release sources are applied to soils high in sand content.

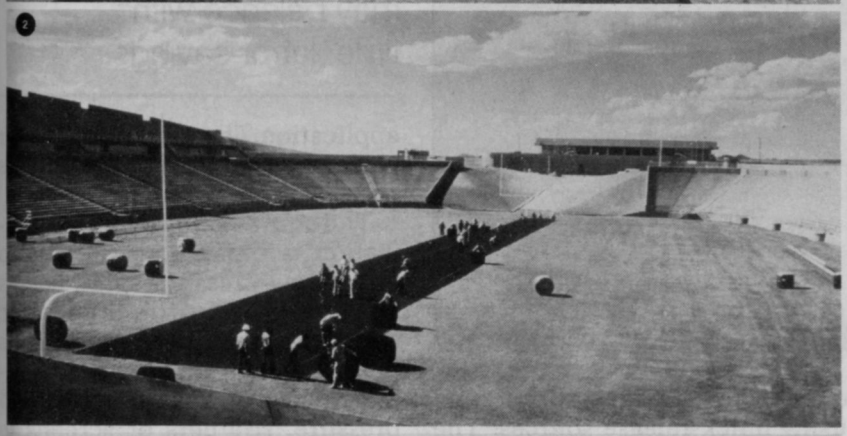
Collection of clippings following mowing has been estimated to remove approximately 20 percent of the nitrogen applied to the turfgrass. As a result, additional nitrogen should be applied to maintain the same quality as where the clippings are not removed.

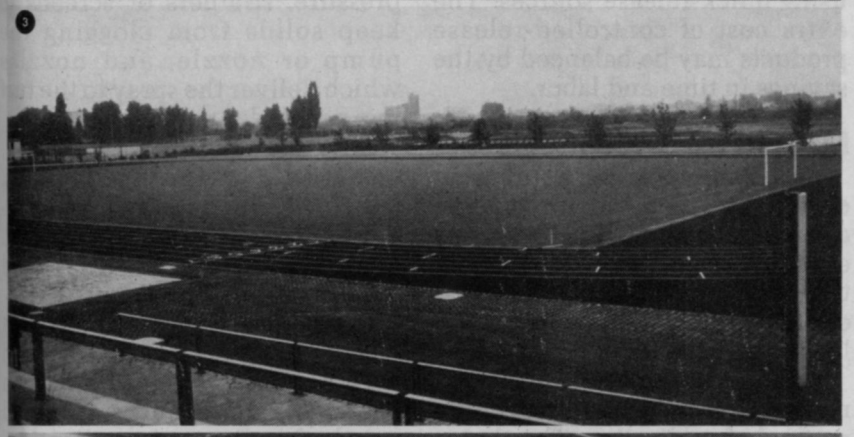
Clipping removal reduces nitrogen levels about 20 percent.

Phosphorus and potassium have been routinely applied along with nitrogen in fertilizers with ratios such as 3:1:2, 5:1:2, or 4:1:1. Rather than applying phosphorus

Landscape architects all over the country are finding their roots in the Enkaturf® System.







❶ **Golf courses** all over the country are using the Enkaturf® System for soil erosion problems, entrance ways to cart paths, tees, pond stabilization and for the construction of flood plains. Roots spread and grow through the Enkaturf System, making the turf more durable. In fact, eleven of the top forty golf courses are protecting their turf with the Enkaturf System.

❷ **Football fields,** all playing fields are protected from tearing and divots with the Enkaturf System. It's structured to keep turf grounded and resilient even in heavy traffic areas. So players are less apt to become injured. The System also reduces compaction while increasing drainage capacity.

❸ **Soccer fields** in Europe have been reaping the benefits from the Enkaturf System for the last 16 years. The aesthetic quality of a natural playing field is enhanced with the Enkaturf System.

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Circle No. 101 on Reader Inquiry Card

Fertilizer

Table 1. Annual Nitrogen Requirement of Turfgrasses*

Species	Length of Growing Season	Nitrogen per Season lbs./1000 sq. ft.	Variations in Management
Cool Season:			
sheeps & hard fescue	4-8	0-3	low maintenance; roughs
red fescues	4-8	1-3	low maintenance to good care
Kentucky bluegrass	5-12	2-8	
bentgrasses	4-8	1-4	medium care, lawn, fairways
bentgrass, greens	5-12	6-15	clippings removed, forced growth
Warm Season:			
zoysia	6-10	1-6	adequate cover
common bermuda	7-12	2-8	most variable
St. Augustine, Bahia	10-12	2-8	warm areas, lawns
bermudagrass, fairways and tees	5-12	4-9	good management
bermudagrass, greens	8-12	8-20	may rest over winter

*Adapted from William H. Daniel and Raymond P. Freeborg's Turf Managers' Handbook.

and potassium each time nitrogen is applied, take a soil test and determine if they are really needed.

Since many soils contain high levels of phosphorus, little, if any, response may be obtained when phosphorus is applied to established turf. Soil pH correction may be a better solution than adding more phosphorus.

The rate of nitrogen applied also depends upon the time of application and the nitrogen source.

Applications of quick-release nitrogen sources in spring or fall are commonly limited to no more than 1.0 lbs. nitrogen per 1,000 square feet. Summer applications of quick-release sources are frequently limited to no more than 0.5 lbs. nitrogen per 1,000 square feet.

In contrast, applications of nitrogen using controlled-release sources are generally made at rates from one to three pounds nitrogen per 1,000 square feet.

The longer residual of controlled-release nitrogen sources reduces the need for more frequent applications required when using quick-release sources. The extra cost of controlled-release products may be balanced by the savings in time and labor.

Method of application

Fertilizers can be applied in either dry or liquid forms. The choice of either liquid or dry equipment for fertilizer application has been the subject of great controversy, particularly in the lawn care industry.

Research has shown turf responds equally regardless of the method of application. The choice of application method should be based on the turf manager's perception of efficiency, convenience, and personal preference.

Two types of spreaders are used to apply granular (dry) fertilizer; gravity and centrifugal.

Gravity or drop spreaders drop the fertilizer, agitated by a mixing bar inside a trough, through a series of slots to the turf below. The centrifugal or broadcast spreader drops the fertilizer from a hopper onto a spinning disk which propels the fertilizer ahead and to the sides of the spreader. The centrifugal spreader applies a wider swath of material allowing the turf manager to fertilizer large areas more quickly than with drop spreaders.

Fertilizer is either dissolved or suspended in water for liquid application. The amount of water varies normally from 1-5 gallons per 1,000 square feet.

> The extra cost of slow-release products may balance with time, labor savings.

The equipment for liquid fertilization is broadly classified into either low-pressure spray booms or high-pressure or hydraulic sprayers. Both types of sprayers feature a tank holding the fertilizer and water, pump to build pressure, strainers or screens to keep solids from clogging the pump or nozzle, and nozzles which deliver the spray to the turf in a particular pattern.

Low-pressure spray booms, operating at pressures of 15-60 lbs. per square inch, deliver one gallon or less per 1,000 square feet. This type of sprayer is used mainly on golf course fairways.

High-pressure sprayers can create spray pressure of several hundred pounds per square inch and use a hose and hand-held nozzle for directed application. High-pressure systems are common in lawn care.

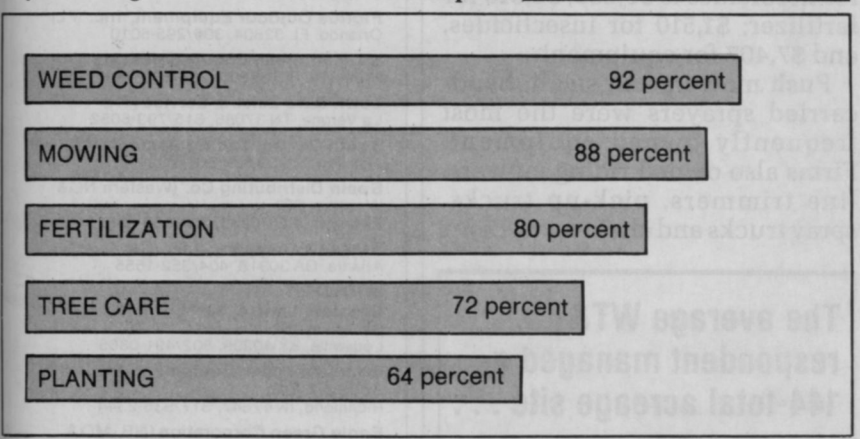
One of the latest controversies in sprayer technology is the advent of low-volume, high-pressure sprayers. The idea is to increase the concentration of fertilizer or chemicals and reduce the amount of water applied. Since less water is used, tank trucks can be smaller, cheaper, and more fuel efficient. The concept is fairly new and is being tried by a limited number of lawn care companies. WTT

LANDSCAPE MANAGEMENT

Industrial Park Management

Managers see need for finding qualified personnel, keeping quality up and expenses down and increased emphasis on weed control.

What types of services do you manage for the industrial or office park?



Dealing with shriveling budgets, controlling weeds and finding qualified personnel and contractors are three of the major areas where industrial/office park landscape managers are finding their greatest challenges.

ost purchasing decisions r equipment are ade in February and arch and in the spring d fall for chemicals.

These are the findings of an informal WEEDS TREES & TURF survey done among industrial/office park landscape managers across the country.

"We're finding it increasingly hard, due to lack of money, to provide proper care and attention to our labor force, equipment and chemical supplies," said one respondent.

"Finding conscientious employees - both skilled and unskilled - is our biggest headache," said another.

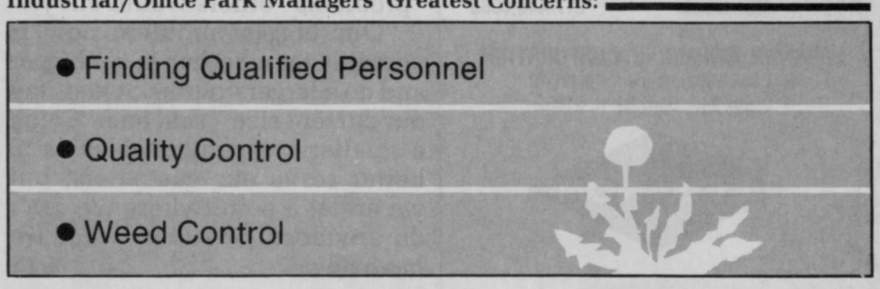
The average WT&T respondent managed a 144 total acreage site, with eight companies comprising it. Landscape firms employed seven full-time employees, two part-time and six seasonal. The companies in the park paid a monthly maintenance fee or annual fee. The landscape contractor's biggest headache is weed control. The greatest number of respondents came from firms which contract landscape maintenance and planting to industrial/office parks, followed closely by industrial/office park management firms. The majority of parks had yet to be fully developed.

Weed control tops the list of services provided with mowing, fertilization, treecare, planting, irrigation and interior building maintenance following. A few also included sweeping parking lots and snow removal. Average area irrigated is 31 percent.

"We have to try to get management to recognize grounds management as a profession . . ."

Ninety eight percent of the respondents made purchasing decisions for the landscape products they use, with most purchasing decisions being made for equipment in February and March and in the spring and fall for chemicals.

Industrial/Office Park Managers' Greatest Concerns:



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SURVEY *from page 37*

Most frequently-owned equipment:

1. push mowers, small sprayers
2. riding mowers, line trimmers, pick-up trucks
3. spray trucks, chain saws

Approximate budgets this year for herbicides is $3,686; $3,913 for fertilizer; $1,510 for insecticides, and $7,407 for equipment.

Push mowers and small, hand-carried sprayers were the most frequently owned equipment. Firms also owned riding mowers, line trimmers, pick-up trucks, spray trucks and chain saws. Least owned equipment were trenchers, wood chippers, motorized spray units, dump trucks and turf aerifiers.

The average WT&T respondent managed a 144-total acreage site . . .

Some managers are finding they would like more management support.

"We have to try to get management to recognize grounds management as a profession," said one manager. "When this is done, it is realizing the importance of maintaining a landscape investment."

Another respondent said he, too, noticed a "decreased interest in grounds maintenance."

Others, however, are having "problems" others would envy.

"Our biggest problem now is deciding on whether to get bigger and do a larger volume or just stay our current size," said one. "Being a smaller company enables us to better serve our customers, but we are at a point where we can't do anymore jobs than what we have now." **WTT**

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LANDSCAPE MANAGEMENT

A Family Affair

New York landscape contractor Ed DeLaurentis combines Japanese esthetics with Western efficiency in industrial and office park designs.

By Maureen Hrehocik, managing editor

Ed DeLaurentis knows "land shaping" is the heart and soul of effective landscaping.

The Mamaroneck, NY, landscape contractor, along with his brother, Joe, have seen the growth of DeLaurentis Construction Co., Inc., a lawn care and landscape contracting company they started in 1963, evolve into one of the more innovative site development contracting businesses in the country. With strong artistic overtones, the company's credo includes totally reshaping the site so that buildings will sit better, and using what other contractors frequently discard, such as rocks, as the focal point of the design. Many of the projects include stone sculptures.

Their contracts have included the Citicorp Executive Conference Center, Crossing at Blind Brook, Purchase Park, New York City's Trump Tower, the majority of landscaping done along a heavily industrial strip along I-287 in Westchester County dubbed the "Platinum Mile," and numerous municipal contracts. The company expects to do close to $5 million in business this year.

Building solid relationships with successful builders over the years has been one reason for the company's steady growth. DeLaurentis especially credits Lowell Schulman, owner and president of the Schulman Realty Group, with giving him the room to realize his creative potential.

"I'm very grateful to Lowell for allowing me to do this," he said.

Ed, as president of the company, is the "leg operation," selling business to clients and doing the design work. Joe, as vice president, supervises the on-site operations. Ed's wife and three sons are also involved in the business. It is Ed DeLaurentis' creative eye and artistic sensibilities, though, that put the distinctive DeLaurentis touch on the company's projects.

***A well sculptured** look enhances corporate park entranceways.*

Building relationships with successful builders...has been one reason for the company's growth.

DeLaurentis Construction has been one of the first landscape companies to take on a project from start to finish -- from design to grading, drainage, paving and landscaping. It is DeLaurentis' "Westernized Japanese effect" combining esthetics with efficiency, that he is especially proud of. His introduction to Japanese landscape architect Kaneji Domoto as one of the company's first customers lead to a 10-year working relationship between the two men. Domoto now refers to DeLaurentis as his protege.

It was mainly the work the two brothers got from Domoto (who was impressed with their expertise as well as ability to complete a job on-time), during the company's infancy that was one of the things, along with the economy, that convinced the brothers it was time to diversify and incorporate and expand their business. Domoto also gave them something more tangible -- a style of design that has become the company's trademark.

DeLaurentis incorporates waste

244 Westchester Avenue is a focal point along the Platinum Mile.

Initial stages of a Platinum Mile site.

excavation to reshape the land. He stockpiles debris. Rock, especially, has become a low maintenance focal point of his very natural, flowing designs using rock sculptures and different colored gravels with plant material.

In order to hone this rock use technique, Joe DeLaurentis got his blasting license. Ed has been self-educated in his profession, relying on his own creative sense, art and sculpture courses and an over 400-book library on landscape design. He is also a participating member of the Metropolitan Museum of Art. DeLaurentis said private sector work provides the greatest challenge.

In one office complex with subgrade office space, DeLaurentis designed a moat with rock gardens so that office personnel would have something other than the brick wall on the opposite side of the complex to look at.

A company spokesperson said DeLaurentis has a knack for solving troublesome problems that his working associates utilize frequently. Joe, besides blasting, has become a knowledgeable horticulturist and specifically handpicks plant material for each project.

The company prides itself on having the right equipment to do the job. Equipment includes a hydro-seeder, rake tractor, paving equipment, tractors, loaders, backhoes, rollers, mulchers and hydraulic excavators.

Because of the tenacity and foresight of two brothers, DeLaurentis Construction Co., Inc. has realized many of its goals. The challenges, however, still exist; one in particular to Ed DeLaurentis.

"I think one of the greatest challenges is the social commitment we have made to enhance and beautify any project we're involved in." **WTT**

LANDSCAPE MANAGEMENT

Union Carbide

Unique landscaping stresses native plant material in North Carolina's Research Triangle Park

By Sandra Ladendorf

The Union Carbide *building sits nestled in a natural setting in Research Triangle Park, NC.*

Companies located in the Research Triangle Park of North Carolina have chosen uniquely different styles of landscaping.

One building sits stark and barren in a desert-like setting; another is landscaped formally. Union Carbide has taken yet another approach in designing the new headquarters for its agricultural division. The division is involved in research, development, engineering and marketing of agricultural products, including insecticides, herbicides and plant growth regulators.

Research Triangle Park contains research development and scientifically-oriented production facilities for 40 companies located on 5,200 acres in the triangle formed by Raleigh, Durham and Chapel Hill.

Union Carbide's agricultural division's management, its landscaping committee and architect Bruce Brodt were unanimously in favor of leaving the 51-acre site as untouched as possible.

"We wanted the building to look natural in the landscaping," said Brodt. The building sits in a woodland of loblolly pines, dogwoods, redbuds and other foliage native to North Carolina.

General project manager Les Paulsen, the Carbider who supervised the construction of the new building, insisted that the destruction of trees be kept to a minimum. The building's contractor was liable up to $250 for any trees injured or destroyed in the roped off woodland area Paulsen had designated. Paulsen did, however, have to destroy the majority of a colony of redbuds in order to construct the new driveway directly opposite IBM's entrance on T.W. Alexander Drive.

The architects conceded only one markedly formal piece at the

Sandra Ladendorf is a journalist and freelance writer based in Chapel Hill, NC.

site -- the entrance driveway. Brodt felt strongly that the driveway should be a straight dual carriageway with a line of native willow oaks up the center dividing strip. The slopes on each side of the roadway are turf-covered. The design then returns to the informal, natural woodland setting with irregular drifts of sweet gum, dogwood, redbud, fringe tree, magnolia, sourwood and other native trees.

In designing the driveway entrance and the rest of the grounds, the landscaping committee began with an initial plan from the architect's office. That plan evolved and changed.

Bowing to budgetary pressures, the committee reduced the size specifications of all plantings. Union Carbide declined commenting on the cost of the entire landscaping project. A.B. Rose Co. of Rocky Mount, NC, was chosen as the landscape contractor.

Barbara Emerson, a senior product specialist for Carbide and a member of that landscaping committee, put her Cornell degree in landscape design to good use as she coordinated and expedited the landscaping efforts at the new site.

"Using small trees and shrubs is a blessing in disguise," she said. "Younger plant material adapts more quickly."

The North Carolina Botanical Garden, which specializes in native plants and the North Carolina State University Horticultural Science faculty were consulted before Emerson selected the plant varieties.

A sharp cut between the entrance parking lot and the greenhouse wing presented the greatest challenge to the landscaping team. Native trees and shrubs were literally left "high and dry" atop the 12 by 200-foot peninsula.

The steep bank facing the building is now planted with Pinus virginiana, Juniperus Wiltoni 'Blue Rug', J. Sargentii and J. chinesis, Sea Foam' to provide varying textures and color while retaining the slope. Some pyracanthas and wax myrtles have been added for height and color.

Boulders left by the excavation have been judiciously grouped into the slope to look as though they had merely been uncovered.

"They add an informal architectural element and a sense of reason," says Emerson, "They help connect the cultivated plants with the native woodland."

The Carbide site is located in the Piedmont section of North Carolina where the soil is a heavy red clay with low fertility and containing almost no organic matter.

To modify this soil in the lawn areas, A.B. Rose rototilled lime and fertilizer into the top six inches of the clay. Two inches of topsoil was then added before seeding with Kentucky 31 fescue. For trees and shrubs, planting high and mulching heavily is generally the rule in the Piedmont. Despite careful planting in the fall of 1981, a number of shrubs drowned during the unusually wet summer that followed. More drainage in several locations and more irrigation were two corrections Ed Levy, Carbide's maintenance supervisor provided after working at the new location for a year.

"Today, areas of too much or too little water have been eliminated," Levy said.

Levy maintains he is very satisfied with the maintenance of the grounds, which is still handled by A.B. Rose Co. Mowing is done on a weekly basis at a three-inch height during the growing season, using hand mowers and a Toro Groundsmaster 72 diesel. Weed control around mulched trees and shrubs is handled by spot applications of contact herbicides.

Levy and Emerson continue to cooperate on additions to the landscaping. While they have planted hundreds of bulbs and annuals for color near the building's entrance, the emphasis this year remains on the insect-resistant, drought-resistant, adaptable native North Carolina trees and shrubs. **WTT**

A stand of native *foliage on the Carbide grounds.*

Barbara Emerson *and Ed Levy of Union Carbide confer with John Walters of A.B. Rose Co., Rocky Mount, NC, who handles maintenance of the grounds.*

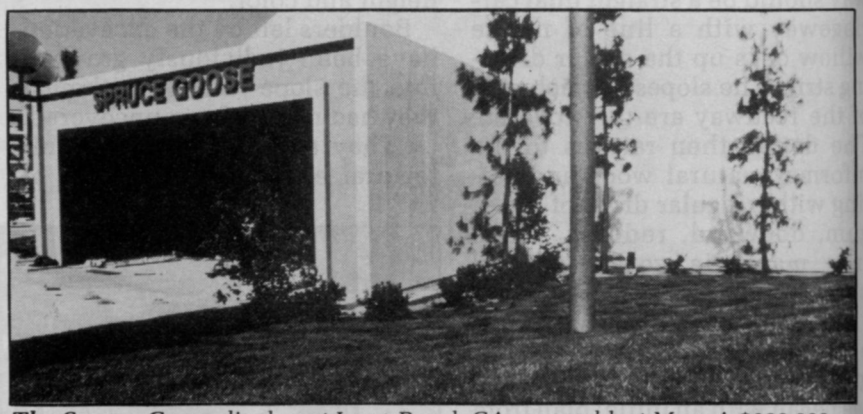
Sprucing up a roost for the Goose

How do you landscape the world's largest nest? Landscape Architect Ron Sidell was faced with that question when he was hired as a consultant to the $200,000 landscape renovation project for the Queen Mary/Spruce Goose display in Long Beach, CA.

Howard Hughes' plywood plane was given a new home last spring when the Wrather Corp. erected a dome to display the mammoth aircraft. As part of a 10-year development improvement plan, the landscaping surrounding the dome, the Queen Mary dock and the English village setting was renovated.

The 20,000 square feet of turf at the site was bluegrass, but "We wanted to make it (the turf) public so people could picnic and relax under shade trees," Sidell says. "With the anticipated increase in traffic, we needed a hardier turfgrass than bluegrass."

Another consideration along the Pacific waterfront site was high winds coming inland. "These daily winds are so severe that we had to devise a special layout for our irrigation system" to offset the drying out, Sidell recalls.



The Spruce Goose *display at Long Beach CA. opened last May. A $200,000 landscape renovation job complimented the "nest."*

To meet those requirements he chose Southland Sod Farms' Marathon Sod for the new turf. Marathon has an extensive deep root system, Sidell notes, which complimented the irrigation system installed to offset those drying winds.

Sidell also incorporated a year-round color program for the foliage installed at the site.

Although the Spruce Goose flew only once, with the eccentric millionaire at the controls, its presence in Long Beach has brought 5-6,000 tourists in on an average weekday. Before the new 'nest' was built, the Queen Mary received that number of visitors on weekends. **WTT**

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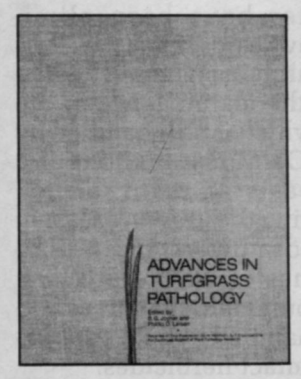

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WTT 11/83

EVENTS

DECEMBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

North Central Turfgrass Exposition, Arlington Park Hotel, Arlington Heights, IL. **Nov. 1-3.** Contact Dr. Thomas W. Fermanian, University of Illinois, 1060 Horticulture Field Lab, 1701 S. Orchard St., Urbana, IL 61801. (217) 333-7847.

Annual Arizona Landscape Awards Program, Rio Rico Resort, Tucson, AZ. **Nov. 5.** Contact Dick Lambert, ALCA, PO Box 27312, Tempe, AZ 85282. (602) 968-8179.

National Institute on Park and Grounds Management/Sports Turf Managers Association. Nov. 6-10. Contact National Institute, Box 1936, Appleton, WI 54913 (414) 733-2301.

California Landscape Contractors Association Convention, Hyatt Lake Tahoe. **Nov. 10-13.** Contact Bob Gouley (916) 448-CLCA.

1983 Oklahoma Turfgrass Conference and Trade Show, Camelot Tulsa. **Nov. 14-16.** Contact Dr. Robert L. Green, 360 Ag Hall, Stillwater, OK 74078.

Greenhouse and Landscape Maintenance Conference, Salt Lake City Tri-Arc Travelodge, **Nov. 15-16.** Contact Dr. Dallas L. Holmes, Utah State University, UMC 50A, Logan, UT 84322.

9th Annual Professional Landscape Management School, Indiana State University - Evansville, **Nov. 15-16.** Contact Allen Boger, Extension Agent, Horticulture Room 202, City-County Building, Evansville, IN 47708.

Arbor Expo, Philadelphia Civic Center, **Nov. 17-19.** Contact Daryl Komar, Conference Management Corp. 17 Washington St., Norwalk, CT 06854. (203) 852-0500.

Agri-Turf Irrigation Exposition & Technical Conference, Currigan Exhibition Hall, Denver, Co. **Dec. 4-7.** Karen Noyes, director of meetings, (301) 871-1200.

Ohio Turfgrass Foundation Conference, Cincinnati Convention Center, Cincinnati, OH. **Dec. 5-8.** Contact Dr. John Street, OTF, 2021 Coffey Rd., Columbus, OH 43210.

New Jersey Turfgrass Expo '83, Resorts International Hotel, Atlantic City, NJ. **Dec. 5-8** Contact Dr. Henry W. Indyk, Soils and Crops Department, Cook College, PO Box 231, New Brunswick, NJ 08903. (201) 932-9453.

North Central Weed Control Conference, Hyatt Regency Hotel, Columbus, OH. **Dec. 6-8.** Contact Clause Cruse, NCWCC Business Manager, 309 W. Clark St., Champaign, IL 61820.

Pennsylvania Turfgrass Conference and Trade Show, Hershey Lodge & Convention Center, Hershey, PA. **Dec. 12-15.** Contact Christine E. King, Executive Secretary-Treasurer, Pennsylvania Turfgrass Council, 412 Blanchard St., Bellefonte, PA 16832. (814) 355-8010.

Fourteenth Annual Turfgrass Conference, Center for Continuing Education, University of Georgia, Athens, GA. **Dec. 14-15.** Contact Gilbert Landry Jr., University of Georgia College of Agriculture, Athens, GA.

22nd Annual North Carolina Turfgrass Conference, Pinehurst Hotel, Pinehurst, NC. **Jan. 3-5.** Contact W.B. Gilbert, 1119 Williams Hall, N.C. State University, Raleigh, NC 27650. (919) 737-2657.

Maryland Turfgrass '84, Baltimore Convention Center, **Jan. 9-11.** Contact Cherly Gaultney, Box 223, White Marsh, MD 21162. (301) 335-3700.

24th Annual Virginia Turfgrass Conference and Trade Show, Williamsburg Hilton and National Conference Center, Williamsburg, VA. **Jan. 18-20.** Contact Dr. John R. Hall, III, Agronomy Dept. VPI&SU, Blacksburg, VA 24061-7294. (703) 961-5797.

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WTT 113

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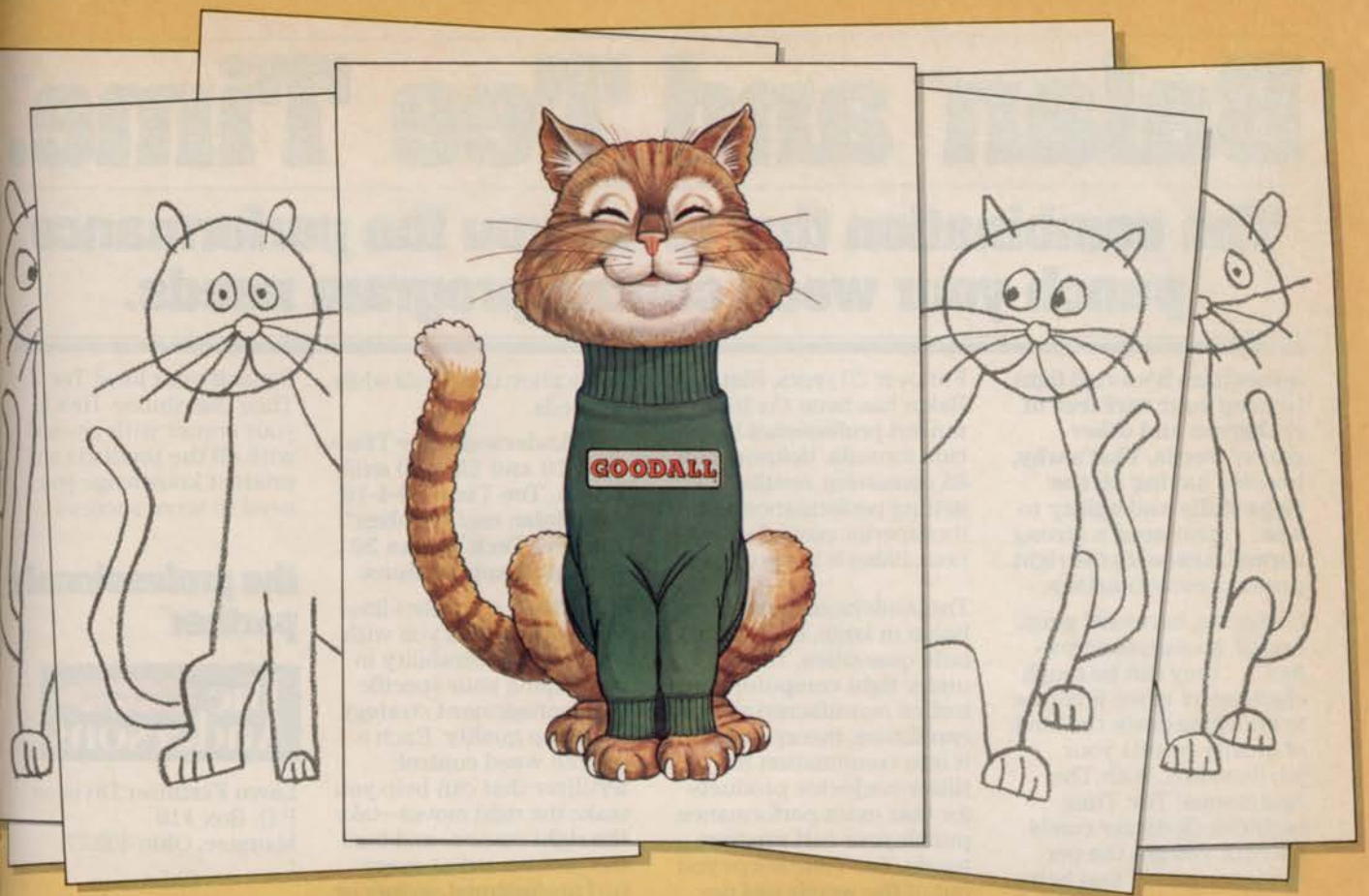

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Crabgrass, barnyard grass, foxtail, goosegrass/crowfoot . . . they can be tough challengers when it comes to knocking down the kind of quality results your job demands. With The Andersons' Tee Time herbicide/fertilizer combinations, you get the performance power that helps you go the distance in controlling weeds and promoting healthy turf growth.

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Pat Kelley

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Other: 216-452-5704
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TURF & TREE SUPPLIES, INC.
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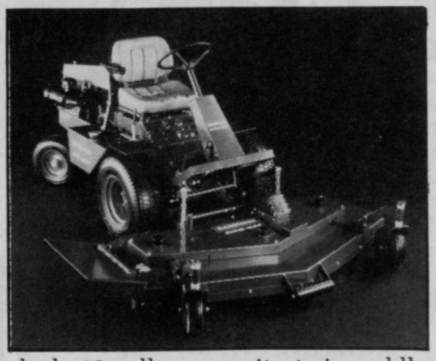
Contact: Jack Oberg

PRODUCTS

Ransomes diesel cuts fuel up to 40 percent

The Ransomes Diesel is powered by a heavy-duty 3-cylinder, water-cooled, 4-cycle Mitsubishi diesel. The rotary rider features a 74 inch steel cutting



deck, 10 gallon capacity twin saddle fuel tank, stamped disc wheels, 7 inch drum-type wheel brakes and Nelson muffler. Options available include steering brakes, roll bar, Peco Vacuum, winterized cab and various snow plow/blower accessories.

Circle No. 140 on Reader Inquiry Card

Northrup King develops mid-South seed mixtures

Northrup King Co. has available a line of professional turf mixtures specifically formulated for use in the mid-South. The company saw a need for developing more of a selecton of turfgrasses that could withstand the rigors of the transition zone.

Northrup King has developed five professional turf mixtures for use in the mid-South: Landscape Pro III, Overseeder III, Premier Turf III, Premium Sod III and Shady Turf III.

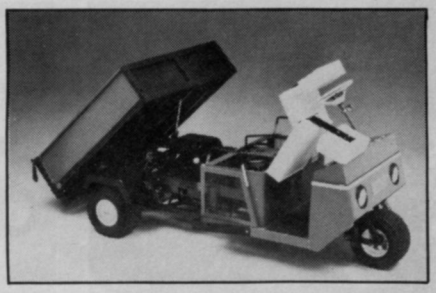
Overseeder III is designed for renovating turf areas damaged by disease and high traffic; Premier Turf III is suited for use in landscaped areas which demand superior turf quality; Premium Sod III was primarily developed for commercial sod production, but is also good for seeding contractors who want a top-quality, all bluegrass product; Shady Turf III was designed for both new seedlings and overseeding in turf areas containing 25 percent to 75 percent shade.

Circle No. 141 on Reader Inquiry Card

GT-7 is E-Z-Go's heavy duty work truck

E-Z-Go's GT-7 is a heavy duty, multi-purpose utility vehicle ideal for handling tough landscaping and groundskeeping assignments at parks, office complexes, resorts, campuses, cemeteries and golf courses.

When equipped with the optional power take-off, the GT-7 will accommodate a seeder, spreader, aerator,



sprayer or top dressing unit.

With an 18-hp, air-cooled engine, the GT-7 will haul a 1500-pound payload at up to 24 miles per hour. The dump body carries up to 19 cubic feet of materials or equipment, and a hydraulic dump option lets the driver unload without leaving the seat.

Other options include a protective cab, electric windshield wiper, range changer with six forward speeds, steel front bumper and side rub rails. Diamond-plate steel on the dump-box sides and tailgate, a newly-engineered

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Shouldn't Your Next Grounds Maintenance Tractor Work Year-Round?

Excel has 20 HUSTLER attachments that make our units "all-season productive."

HUSTLER: #1 SOLUTION

Thanks to its quick-hitch capability and 20 different attachments, your return on an investment in a HUSTLER tractor can be maximized.

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FALL & WINTER ATTACHMENTS: ***Rotary Broom*** for debris or light snow; ***54" or 60" Snow Throwers; 60" V-Blade; 60" or 72" Dozer Blades; 1/2 cu. yd. Utility Scoop; or Snow Groomer.***

ROPS, ROPS/Cab, headlights, heater and tilt-deck trailer also are available for HUSTLER models.

All HUSTLER attachments are designed for total grounds maintenance care. The HUSTLER simply does it all!

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Heater
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heavy-duty front fork with coil springs and forward-tilting seats for easy access to the engine compartment are all standard.

Circle No. 142 on Reader Inquiry Card

Sea-Wet increases effectiveness of sprays

Sea-Wet, a new spreader/sticker with defoamer, is designed to increase the effectiveness of all tank spray mixtures, including fertilizers, herbicides, fungicides and insect sprays. When used according to label directions, Sea-Wet helps form droplets of uniform composition and produces increased contact and coverage per drop of spray. The spray wets the entire surface including cracks while the sticker holds the active elements in contact with the target surface. Because Sea-Wet is a defoamer, it can be added during any phase of the mixing procedure without forming troublesome foam. It is non-ionic, non-toxic and non-corrosive.

Circle No. 143 on Reader Inquiry Card

Trailer has hydraulic power unit

Ucrete has introduced a new heavy-duty three-yard capacity dump trailer with hydraulic power unit. Power unit can be used to operate pavement breakers, concrete saws, hammers, chain saws, etc. Features low box profile for easy loading with loader or by hand. Box length is 8-feet-1 inch and width is 4-feet 10 inches, weight is 2150 pounds. Standard equipment includes surge brakes, adjustable hitch, 16 h.p. engine with hydraulic lift, retractable hose reel with double hose and quick disconnect hose coupling. Ideal for contractors, rental companies, landscapers, city and county maintenance and utility companies.

Circle No. 144 on Reader Inquiry Card

←Circle No. 109 on Reader Inquiry Card

Fine Fescue for Sure

Alone or in a mixture, Oregon fine fescue rates another look

When a turf area thrives around trees; requires relatively little water, fertilizer and sunlight, yet maintains a picture perfect appearance, it's fine fescue. If it germinates and performs better than imported varieties, it's *Oregon grown* fine fescue. If it's found in parks, golf courses, home lawns, industrial campuses and anywhere a fine textured turf is desired, it's Oregon grown fine fescue *for sure!*

For a series of eight tech sheets on Oregon grown chewings and creeping red fescues, call or write

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503/585-1157

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FOR SALE

Princeton Sod Cutter-$9000.00. Jacobsen Gang Mower, $8500.00. Complete Sod business with sod and equipment. (303) 858-7464. 7/84

CLOSEOUT SPECIAL!Save your back issues of WEEDS TREES &TURF and save money at the same time. We're closing out our line of permanent binders at the special low price of *two for only $7.50!* (This is a $7.00 savings over our regular price plus postage and handling.) Orders will be filled as long as our supply lasts—quantities are limited. Order your binders today from: Book Sales, HBJ PUBLICATIONS, One East First Street, Duluth, MN 55802. TF

GREENSMIX —New or old const. Will blend material on job site for you, radius of 700 miles. Large Royer—S.D.I., P.O. Box 26ll, Shawnee Mission, Kansas 66201. Phone (913)381-5151.

LAWN SEED. Wholesale. Full line of top quality grasses. Improved bluegrass varieties, fine fescues and fine bladed ryegrasses. We specialize in custom mixing. Oliger Seed Company, 2705 Wingate Avenue, Akron, OH 44314. Call collect (216) 753-2259.

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300 acre sod farm. 150 acres ready for market. Steady business. Good investment property. Southeast MN. Land contract available to right party. 608-784-6530. 11/83

Used Finn lawn feeder, 800 gal. w/hose, reel & spray gun. $5000.00, (502) 782-2730, 1:00 pm - 4:30 pm. 11/83

For Sale — Toro Fairway Mowers, 7 gang. Slightly used. Call evenings 1 (518) 861-6454. 11/83

Sprayer, 200 gallon fiberglass tank with agitation, gas engine, reel with 300 feet of hose, guns, skid mounted. 2 years old. $2000. Also, two injectometer stainless steel duplex pumps with 12 volt motors. Like new. Make offer. Pittsburgh. (412) 422-8232. 11/83

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120 acre sod farm. 90 acres peat, 30 acres mineral, 60 acres sod ready. All equipment. Brouwer harvester, forklift, tractors, irrigation, etc. In business 21 years, ready to retire. Will help to finance. Cleveland, Akron, Canton market. 216-494-2404 after 6 P.M. 11/83

TREE REMOVAL TRUCK—1974 Int'l. 14' Dump Truck with J.D. Pettibone Elbow Loader, $11,000. Good Condition - Bank of Galesville, Galesville, WI 54630 - Phone 608-582-2233. 12/83

For Sale: 1978 Brouwer Sod Harvester on 1978 Ford Diesel 3600 tractor. Excellent condition. 600 hours. Phone (208) 939-2348. 11/83

For Sale — Princeton mod. 4020 sod harvester, gas powered. Excellent condition. $12,000.00. Tur-Chem Enterprises, Inc. (503) 662-3237.

NEW TREE FERTILIZATION GUN, tested on over a million square feet of trees and shrubs all over the U.S. Good to 500 psi, repairable, non-corrosive. Buy direct from manufacturer, $89.50 + Shipping. Arbor-Nomics, Inc., 5634-A Buford Highway, Atlanta, Georgia 30071. (404) 447-6037. TF

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1981 Rittenhouse Shade Tree Sprayer — 800 gallon tank — 50 GPM Hydro AR 1900 pump — Wisconsin VG4D engine — $6,500.00.One new/used Hannay Hose Reel — large shade tree sprayer model — $300.00. 1971 John Deere 540 Forwarder — big 6 Cyl. engine — frame extended to WB or 180", top of frame will handle 10' length of load — 23.1 x 26 tires — fair, excellent mechanical condition — $20,000.00. One new closed circuit hydraulic Limb Lopper prunner — $375.00. Also utility herbicide chemicals — call for list. (914) 561-3490, 8:00-4:30 P.M. Mon.-Fri. 11/83

Hydraulic cranes, bucket trucks, knuckle boom loaders, crew cab tree trucks, dump chip boxes. 75 used trucks in stock. Opdykes Sales, Route 309, Colmar, (Phila) area PA. (215)822-8300. 12/83

For Sale: 1972 Brouwer Sod Harvester 24 in. cut, 48 in. x 48 in. pallet size. Been overhauled. Runs good. Looks good. Price $8,000.00. (517) 676-2362. 11/83

TREE CARE TRUCK — 1973 Chevrolet C65 Truck, 20' Flatbed dump rigged with chip box and 1000 gallon FMC sprayer, $17,000.00. World of Green, Inc., 817/469-8943. 11/83

For Sale — 1978 Princeton Sod Harvester, Model #4020, with John Deere diesel. Ready for work! Looks Good — Runs Good! $17,500. Grass Farm, Morgan Hill, CA. (408)226-9775. 11/83

HI-RANGERS AERIAL BASKETS 65', 57', and 53'. Skyworkers aerial baskets 65', 50', 40'. Vermeer stump cutter 1560,6. Vermeer tree spade 66, TS 44. Asplundh bucket and brush chippers, Bean sprayer, 9 ton trailer. Parkway Tree Service, 12026 W. Cherry, Wauwatosa, Wisc. 53226. (414) 257-1555. TF

NEW and USED EQUIPMENT Hi Ranger and Asplundh Forestry bucket trucks, Asplundh and Chipmore wood chippers, Stump Grinders, Log Splitters, Crane Trucks. Mirk Inc. (216)669-3567, (216) 669-3562, 7629 Chippewa Road, Orrville, Ohio 44667. TF

HYDRO-MULCHERS AND STRAW BLOWERS New and used. Souhtwest Hydro-mulchers, 3220 S. Jupiter Rd., Garland, Tx. 75041. (214)840-2440 (Tx.), (800)527-2304(except Tx.) TF

Tree Lawn Sprayer, reconditioned, skid mounted, Hypro 7 roller 10 gpm pump. Reel, 250 ft. hose, 2 tanks(110/200 gal.). Spray from one or both. $1250.00. (217) 762-9721. 11/83

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GENERAL MANAGER for large steadily expanding metropolitan and suburban landscape maintenance corporation in south Florida. We are well established and innovative, offering excellent opportunity and complete benefit package. Salary commensurate with experience and performance. Position requires high management and people skill, and hand on product knowledge. Send resume and salary history in confidence to WTT Box 327. 11/83

LANDSCAPE MAINTENANCE DIVISION MANAGER —Looking for person to start a maintenance division. Must be hard working, aggressive, knowledgeable, and experienced. Capable of physically working in field as well as designing programs and managing people. Knowledgeable in all phases of horticulture and capable of administering an integrated pest management program. Send resume with references to: Charles W. Bowers, Garden Gate Landscaping, Inc., 821 Norwood Rd., Silver Spring, MD 20904. 10/83

SALES REPRESENTATIVE WANTED — For growing turf supply company. Must have 10 years experience and extensive knowledge of lawn care products. Must be willing to travel extensively. Send resume to WTT Box 326. 12/83

GREENS SUPERINTENDENT WANTED FOR **Dodger Pines Country Club.** Send Resume to: Bill Moolenaar, Dodgertown, P.O. Box 2887, Vero Beach, Florida 32961-2887. 11/83

"We are a Southeast Toro Distributor looking for an individual with irrigation experience. Ideally this individual has experience in Golf Course, Commercial and Residential Designs. He/she also has experience in service and a good working knowledge of pump stations. Salary commensurate with experience. Please send resume in confidence to WTT Box 325." 11/83

General manager position open for chemical lawn and shrub division of established landscaping company in the sunbelt area. Tremendous opportunity for an aggressive individual having experience with a national or regional lawn care company. We are looking for a BUSINESSMAN — the very BEST!! Knowledge of turf grass, ornamental plants, and marketing needed. The right person will enjoy excellent salary, benefits, and opportunity for equity participation with unlimited earnings potential. Send complete resume including education, experience, and salary history. All replies will be kept confidential. Write WTT Box 325. TF

MISCELLANEOUS

DIESEL HI-RANGER TOWERS—48-100 Feet working heights. Daily, weekly, monthly rentals with or without operator. MATLOCK LEASING, Pottstown, PA (215) 326-7711 or (800) 345-7711. TF

Attend *Arbor Age's* First Annual Conference and Exhibition for the tree care industry, November 17-19, 1983, Philadelphia Civic Center, Philadelphia, PA. Call Nancy, 203-852-0500 for more information. 11/83

See & inspect thousands of landscape products from hundreds of top suppliers at Mid-Am/84, Jan. 13-15, Hyatt Regency Chicago. Contact Mid-Am, 4300-L Lincoln Ave., Rolling Meadows, IL 60008. 312/359-8160. 12/83

Inventions, ideas, new products wanted for presentation to industry and exhibition at national technology exposition. Call 1-800-528-6050. Arizona, 1-800-352-0458. X831. 11/83

POSITION WANTED

Chemical Lawn and Tree Manager—Seeks challenging management position for established chemical lawn and tree company in Florida. Six years experience, with extensive knowledge of turf grass, ornamental plants, and marketing. Resume upon request. Write WTT Box 319.

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WANTED

WANTED: Large Lindig and Royer Shredders. Lewis Equipment, 320 Third Street S.W., Winter Haven, FL 33880. (813)294-5893. 6/84

ACCOUNTS WANTED —National chemical lawn care company seeks accounts to acquire. Selling price open for negotiation. If interested, send name, address, phone number and number of accounts available to WTT Box 317. 3/84

TURF MANAGERS' HANDBOOK

By Dr. William Daniel and Dr. Ray Freeborg

$23.95* **hardcover** $18.95* **paperback**

This essential reference book covers:

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- •grasses and grooming
- •rootzones and water
- •nutrition
- •pests and controls
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219	Ciba-Geigy Corp.	18
106	Cushman	4, 5
107	John Deere & Co.	CV 3
108	Dow Chemical U.S.A.	CV 2, P. 1
109	Excel Industries	52
110	E-Z-Go	23
128	The Green Machine/ HMC	20, 21
111	Hahn	9
112	Clifford B. Hannay & Son	34
113	Hypro	28
114	Jacobsen Div. of Textron	30
115	Lebanon Chemical Corp.	30
116	Lebanon Chemical Corp.	38
117	Lofts Seed	CV 4
210	Milliken Chemical	7
119	National Mower Co.	56
129	Ohio Turf Foundation	13
120	Oregon Fine Fescue	53
211	Ransomes	38, 39
122	SDS Biotech, Ag Chem Bus.	24, 25
123	Spraying Systems Co.	29
124	Stauffer Chemical	15
125	Tee-2-Green	3
126	The Toro Co.	17
127	Trebor Corp.	56
130	Trojan Battery Co.	31

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Reader Service Number		Page No.
140	Ransomes	51
141	Northrup King	51
142	E-Z-Go	51
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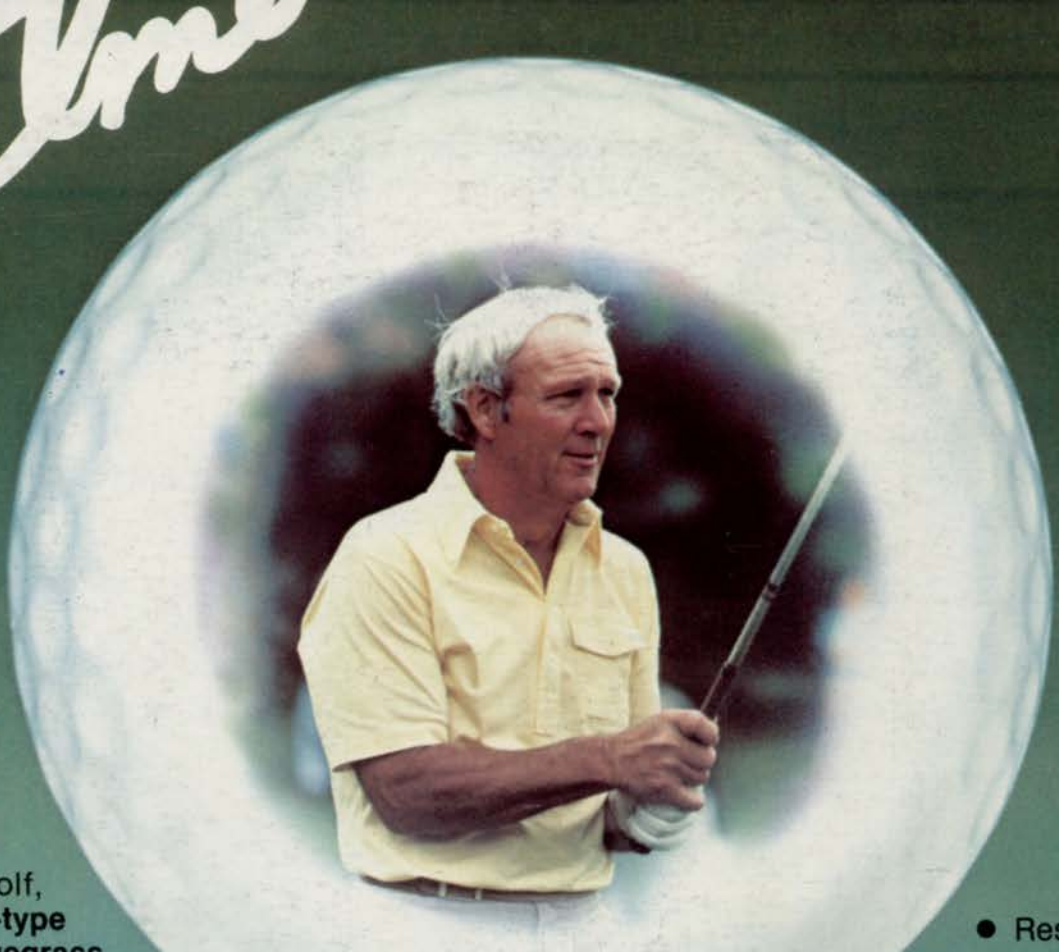

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